

**CENTER
OF OUR
STRENGTH**

**PROGRAM
EXECUTIVE
OFFICE
SOLDIER
PORTFOLIO
FY2011**



To The Reader



At PEO Soldier, our only mission is to serve you, the Soldier. The PEO Soldier Team is committed to providing our Soldiers with world-class equipment that will enable them to be more lethal, survivable, and able to operate in any environment.

Equipping and maintaining you with this world-class equipment is a dynamic challenge. With the ever-changing nature of your mission requirements, we are constantly developing, reevaluating—and in some cases, reinventing—the right equipment to support your mission. We do this by continually researching, developing, testing, and fielding equipment, as well as directly receiving your feedback to ensure we always meet your ever-changing needs.

Similar to previous years, we believe we are translating your mission needs into new capabilities that support your operations in a complete range of operational scenarios, including the extremes of conditions.

Thank you for your continued service and support.

A handwritten signature in black ink, appearing to be "P. Fuller", written in a cursive style.

Peter N. Fuller
Brigadier General, USA
Program Executive Office Soldier

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PROGRAM EXECUTIVE OFFICE SOLDIER





CENTER OF OUR STRENGTH

The Army views the individual Soldier as the Center of Our Strength, the cornerstone on which all Army operations are built. To support this view, Program Executive Office (PEO) Soldier is committed to providing Soldiers with the best available equipment, with the knowledge that changing operating environments require constant reevaluation of Soldiers' needs. PEO Soldier, in existence since 2002, is the organization responsible for equipping Soldiers with everything they wear or carry. With innovative concepts and technologies and invaluable feedback from Soldiers, PEO Soldier delivers mission-critical equipment to Soldiers when and where they need it as quickly as possible.

The current PEO Soldier organization includes four board-selected Project Management (PM) Offices: PM Soldier Protection and Individual Equipment, PM Soldier Sensors and Lasers, PM Soldier Warrior, and PM Soldier Weapons. These four Project Management Offices oversee a total of nine Product Management Offices and Directorates that are responsible for managing the life cycles of virtually everything Soldiers wear or carry into combat.

This year, PEO Soldier is proud to add to the Soldier's arsenal the M240L, a new titanium medium machine gun that significantly reduces the weight of the existing M240B while delivering the same high levels of performance and reliability; the T-11 Personnel Parachute System, which decreases landing injuries and permits the user to carry a heavier load; and the Fire Resistant Army Combat Uniform-Permethrin, which protects Soldiers from a variety of insect-borne diseases.

These are among the hundreds of pieces of equipment that have been designed, developed, procured, and fielded by PEO Soldier to enhance Soldiers' performance and safety as they defend American interests in hostile environments worldwide.

With improving technologies and constant feedback from Soldiers in the field, PEO Soldier will continue to fulfill its mission to equip the Soldier for current and future strategic, operational, and tactical challenges.





LETHALITY

SURVIVABILITY

OPERATING ENVIRONMENT



LETHALITY

The lethality of the U.S. Army is unmatched by any military force in the world today. To maintain and sustain that lethality now and into the future, PEO Soldier is constantly developing and improving products using the best research and latest technology available to provide cutting-edge gear to U.S. Soldiers.

To meet the operational needs of the individual Soldier, PEO Soldier develops and improves the performance of individual and crew served weapon systems, and related target acquisition and fire control products. For example, Soldiers with basic marksmanship skills can effectively engage exposed or hidden targets in mere seconds using the new XM25, Counter Defilade Target Engagement System.

To help Soldiers maintain their battlefield superiority, PEO Soldier develops sensors and lasers that give Soldiers the tools they need to operate effectively in diverse weather and visibility conditions, to see the enemy first, and to direct fire to designated targets. For example, the Joint Effects Targeting System enables Soldiers to acquire targets, convey target data, and laser-designate targets for attack by Laser Guided Weapons.

To ensure continued dominance by mounted Soldiers, PEO Soldier extends platform capabilities to vehicle crew members, including commanders, drivers, and gunners with the Mounted Soldier System. This evolutionary program enhances the Soldier/platform fusion required for optimal mission performance over a broad spectrum of operations.

LETHALITY HIGHLIGHTS

XM25, Counter Defilade Target Engagement (CDTE) System

Delivers leap-ahead overmatch capability that enables small units and individual Soldiers to engage defilade targets with a family of air burst munitions. For more information, go to page 208.



M26 12-Gauge Modular Accessory Shotgun System (MASS)

Enables a faster transition between the primary weapon and shotgun while providing Soldiers with lethal, less-than-lethal, and door-breaching capabilities. For more information, go to page 218.



M16/M4 Improved Magazine

Delivers improved reliability for the M16 and M4 weapons systems by incorporating a redesigned follower that minimizes jamming and can be identified by a tan-colored follower. For more information, go to page 234.



Joint Effects Targeting System (JETS)

Will provide the ability to acquire, mark, and designate for laser-guided munitions in a one-man portable targeting system, as well as provide connectivity to the joint forces networks. For more information, go to page 158.



Multifunction Aiming Light (MFAL)

Provides accuracy in day and night operations through laser point and precision aiming in visible or infrared spectrums. For more information, go to page 136.



Mounted Soldier System

Delivers increased combat effectiveness by integrating Soldiers into their combat platform. For more information, go to page 200.





SURVIVABILITY

U.S. Soldiers are called upon daily to put their lives on the line as they carry out their missions in hostile environments where they are subjected to improvised explosive devices, sniper attacks, and numerous other hazards, both seen and unseen. To give Soldiers the best possible chance for survival amidst these conditions, PEO Soldier develops and fields state-of-the-art protective equipment, which includes everything from clothing to body armor.

To reduce the incidence and severity of injuries for all Soldiers, PEO Soldier developed and fielded state-of-the-art force protection equipment, including superior body armor and helmets, that defeats ballistic and fragmentation threats in theater. Interceptor Body Armor is designed not only to stop or slow bullets and fragments but also to provide the Soldier greater comfort and maneuverability.

To increase the survivability of Soldiers operating crew served weapons, PEO Soldier developed the Common Remotely Operated Weapon Station, or CROWS, which gives Soldiers the ability to acquire and engage targets using a common mounting station while they remain protected inside an armored vehicle.

To boost the survivability of air crews, PEO Soldier provides aviation life support and mission equipment that increases situational awareness and is modular in nature, providing greater mobility for safe aircraft operation and reducing physiological stress.

SURVIVABILITY HIGHLIGHTS

Common Remotely Operated Weapon Station (CROWS)

Enables Soldiers to acquire and engage targets from inside an armor-protected vehicle, while the CROWS Mounted Green Escalation of Force Kit provides a safe, effective, and non-lethal tool that deters without the need for deadly force. For more information, go to page 246.



Air Warrior

Enhances mission effectiveness for aircrew members and provides advanced life support as well as ballistic and chemical protection. For more information, go to page 166.



Interceptor Body Armor (IBA)

Provides the Soldier with enhanced protection from ballistic and blast effects while maintaining comfort and maneuverability. For more information, go to page 18.



Operation Enduring Freedom Fire Resistant Army Combat Uniform (OEF FR ACU)

Provides concealment for Soldiers operating in Afghanistan's multiple-terrain environment, as well as fire-resistant protection and built-in protection against bothersome or disease-carrying insects. For more information, go to page 45.



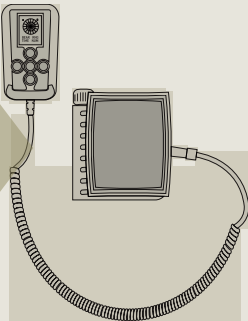
Fire Resistant Environmental Ensemble (FREE)

Increases comfort and ergonomic efficiency for aviators and combat vehicle crewmen. For more information, go to page 60.



Individual Gunshot Detector (IGD)

Alerts Soldiers to the direction and range of incoming fire using a passive acoustic system. For more information, go to page 142.





OPERATING ENVIRONMENT

Because U.S. Soldiers are deployed to areas with diverse climates, terrain, and threat conditions, they must have gear that is adaptable to any operating contingency. PEO Soldier strives to equip Soldiers with everything they need to maintain optimal effectiveness while protecting their lives.

Among the items produced by PEO Soldier to meet the needs of Soldiers operating in extreme temperatures is the Generation III Extended Cold Weather Clothing System, a system of 12 modular uniform components that allows Soldiers to adapt their clothing to the mission environment. By utilizing the multi-layered system, Soldiers can safely and comfortably conduct operations in temperatures ranging from 40 degrees Fahrenheit to minus 60 degrees.

The Soldier Plate Carrier System developed by PEO Soldier helps Soldiers adapt to different operating environments with a new, lighter-weight body armor system for use in operations where mobility is paramount. The vest component carries standard armor plates for vital ballistic protection, but, to maintain maneuverability, covers less of the body than the more comprehensive Interceptor Body Armor system.

During nighttime or limited visibility operations, Soldiers can rely on the Enhanced Night Vision Goggle, a helmet-mounted device that uses image intensification technology and long-wave infrared sensors to allow Soldiers to see not only at night but also in conditions degraded by fog, dust, and foliage.

OPERATING ENVIRONMENT HIGHLIGHTS

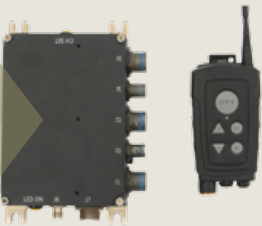
Generation III Extended Cold Weather Clothing System (ECWCS)

Provides Soldiers a multi-layered, versatile, insulating system that is adaptable to varying operational and environmental conditions. For more information, go to page 64.



Aircraft Wireless Intercom System (AWIS)

Enhances aircrew safety by delivering wireless communication between crew members in and around the aircraft during missions. For more information, go to page 168.



Enhanced Night Vision Goggles (ENVG)

Provides Soldiers superior ability to operate in darkness by combining light amplification with long-wave infrared sensors. For more information, go to page 124.



Soldier Plate Carrier System (SPCS)

Allows the Soldier to tailor individual loads to meet mission requirements with modular, flexible equipment. For more information, go to page 20.



Nett Warrior

Provides overmatch operational capabilities to all ground combat Soldiers and small unit operations. For more information, go to page 194.



T-11 Parachute

Provides the capability to handle heavier jump weights with a more stable, slower rate of descent. For more information, go to page 112.





LIGHTEN THE LOAD


PEO Soldier expends considerable effort in trying to lighten the Soldier's load—developing and fielding equipment that weighs less, takes up less space, and combines functions to eliminate redundancies in equipment. Lightening the load enhances lethality, survivability, and maneuverability, making Soldiers more effective in any environment.

PEO Soldier's recent achievements in lightening the Soldier's load include the development of the Advanced Combat Helmet, which is 8 percent lighter than its predecessor, is more comfortable, and can support a sensor system that provides feedback on head injuries.


Another load-lightening development is the Enhanced Night Vision Goggle, which provides Soldiers superior ability to operate in darkness by combining light amplification with long-wave infrared sensors. The fusing of these two technologies eliminates the need for separate technologies.

The Improved Outer Tactical Vest is the latest advance in body armor and is more than three pounds lighter than its predecessor, the Outer Tactical Vest. For better maneuverability and greater flexibility in adapting to various operating environments, the Soldier Plate Carrier System is a new, lighter-weight body armor system that reduces the weight of fully equipped body armor by more than nine pounds.


LIGHTEN THE LOAD HIGHLIGHTS




RIFLES/CARBINES
-1.4 lbs / 17% Lighter




M4




HELMETS
-0.3 lbs / 8% Lighter




ACH



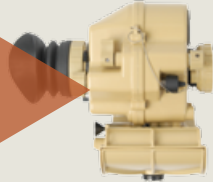
LT/MED MACHINE GUNS
-5.0 lbs / 18% Lighter




M240L




SENSORS
-0.8 lbs / 29% Lighter




ENVG




PVS 14




BODY ARMOR
-2.0 lbs / 6% Lighter



IBA (IOTV)



BODY ARMOR
-9.2 lbs / 30% Lighter



SPCS



SOLDIER AS A SYSTEM

Providing Soldiers with equipment to meet every contingency has its challenges. For example, individual components that do not work in concert or that add to the Soldier's weight burden could hinder mission success and compromise safety. Thus, PEO Soldier treats the Soldier as a system, developing and fielding products that work together to deliver unmatched lethality, survivability, and adaptability to diverse operating environments.

With three integrated Soldier systems, PEO Soldier has greatly improved the effectiveness of aviators, mounted Soldiers, and dismounted infantry across all operating environments. For aviators, the Air Warrior equipment provides protection and survivability gear as well as

state-of-the-art situational awareness devices. The Mounted Soldier System is a Soldier-worn system that will change how vehicle crews operate, giving them access to the communication and sensor systems normally accessible only from within the vehicle. This capability provides a greater degree of situational awareness and freedom of movement to Soldiers and allows them to operate more effectively. The Nett Warrior Ground Soldier System Increment I connects dismounted Soldiers to the Army's information network via a wearable system that allows Soldiers to pass digital information such as position location, map markers, photos of targets, and messages to one another. All of these programs are centered on giving Soldiers a tactical edge in any operating environment.

GETTING GEAR TO SOLDIERS IN THE FIELD

For the past six years, PEO Soldier's Rapid Fielding Initiative (RFI) has provided state-of-the-art modernization items to more than 1.5 million deploying Soldiers. These items enhance individual and small unit lethality, survivability, and ability to operate in diverse environments.

RFI uses a centralized planning, materiel management, and distribution process. As a result of the success of RFI, PEO Soldier has been reorganized to integrate RFI processes into the Directorate of Logistics (G4). The PEO Soldier G4 is now expanding the processes to synchronize fieldings for all items in the PEO Soldier portfolio. There are three objectives to this initiative. First, centralized scheduling is a critical step toward aligning PEO Soldier programs with Army Force Generation requirements. Second, synchronizing the delivery of all Soldier system items will reduce the overall impact on unit training schedules. And third, conducting fewer fielding events per unit will reduce the impact on local installation infrastructures by minimizing requests for facilities and other support items.

By taking the expertise and processes of the RFI and spreading it across the entire PEO Soldier portfolio, we can realize outstanding benefits not only to the Army but also to each individual Soldier.



Project Manager Soldier Protection and Individual Equipment (PM SPIE)

Product Manager
Soldier Protective Equipment

Product Manager
Soldier Clothing and Individual Equipment

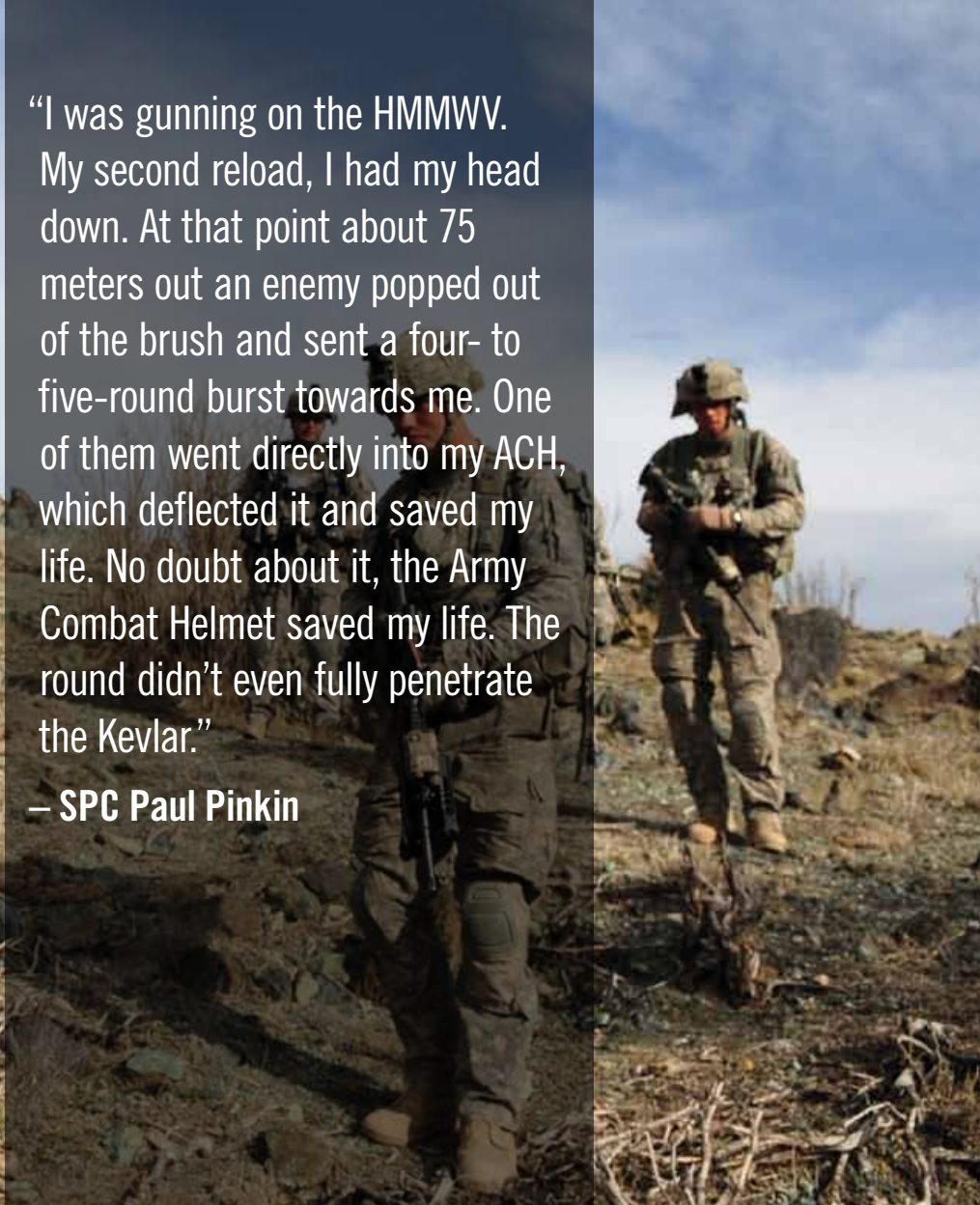
PM SPIE develops and fields advanced Soldier protection products, comfortable uniforms that enhance mission effectiveness, and improved parachute systems. These products are designed to protect Soldiers and allow them to operate in any conditions.





“I was gunning on the HMMWV. My second reload, I had my head down. At that point about 75 meters out an enemy popped out of the brush and sent a four- to five-round burst towards me. One of them went directly into my ACH, which deflected it and saved my life. No doubt about it, the Army Combat Helmet saved my life. The round didn’t even fully penetrate the Kevlar.”

— SPC Paul Pinkin



PRODUCT MANAGER SOLDIER PROTECTIVE EQUIPMENT (PM SPE)

PM SPE develops and fields state-of-the-art force protection equipment that defeats ballistic and fragmentation threats in theater. PM SPE provides superior body armor, helmets, and other gear that greatly reduce the threat of serious injury.



The **Advanced Combat Helmet (ACH)** provides ballistic protection in a lightweight, comfortable system. The ACH can also support sensor systems to provide potentially valuable information about battlefield head injuries.



The **Soldier Plate Carrier System (SPCS)** provides ballistic protection equal to or greater than that of the Improved Outer Tactical Vest in a stand-alone capacity, while reducing the Soldier's load, enhancing comfort, and optimizing mobility. The SPCS gives commanders more choices in how to carry out their missions while giving Soldiers greater flexibility to operate in demanding terrain.

Body Armor, Interceptor (IBA)

MISSION

Provides the Soldier with enhanced protection from ballistic and blast effects while maintaining comfort and maneuverability.

Interceptor Body Armor (IBA) is a modular protective system consisting of an outer vest, ballistic plates, and attachable components that increase the area of coverage. IBA can stop or slow bullets and fragments, thus reducing the number and severity of wounds. In addition to its protective qualities, IBA is designed to provide Soldiers with lighter-weight comfort and greater maneuverability.

The **Improved Outer Tactical Vest (IOTV)** provides protection from fragments and 9mm rounds. **Enhanced Small Arms Protective Insert (ESAPI)** plates and **Enhanced Side Ballistic Insert (ESBI)** plates provide additional coverage as they protect the wearer's sides between the front and rear ballistic plates. The **X-Threat Small Arms Protective Insert (XSAPI)** plate was designed to meet near-term emerging threats and provide additional ballistic protection against more lethal small-arms rounds. The plates can withstand multiple small-arms hits, including armor-piercing rounds.

Deltoid protectors compatible with the IOTV extend protection from small arms and fragmentation to the upper arm area. The IOTV has throat and underarm protection built in, and groin protection can be added as needed.

The IOTV is more than 3 pounds lighter than its predecessor, the Outer Tactical Vest (OTV). The side-opening IOTV has an increased area of coverage over the OTV. It includes multiple adjustment points to improve fit, weight distribution, and load-carriage capabilities. It has a mesh lining for better ventilation. A single quick-release added to the front of the vest allows a Soldier to remove the IOTV and its attachments with one pull. The IOTV comes in 11 sizes, including three tall sizes.

Non-Destructive Test Equipment (NDTE) uses digital X-rays to detect any physical defects in body armor plates, and thus ensures that Soldiers are equipped with mission-capable body armor while in theater. NDTE is a portable, deployable, self-contained system that can scan a plate in 15 seconds or less, or as many as 240 plates in an hour.





*Non-Destructive Test Equipment
(NDTE)*

Soldier Plate Carrier System (SPCS)

MISSION

Provides ballistic protection equal to or greater than that of the Improved Outer Tactical Vest in a standalone capacity with reduced Soldier load and optimum mobility.

The **Soldier Plate Carrier System (SPCS)**, when used in conjunction with the Enhanced Small Arms Protective Insert and the Enhanced Side Ballistic Insert, provides National Institute of Justice Level IV+ ballistic protection. The SPCS provides a lightweight vest that weighs 5.85 pounds in size medium without ballistic plates, and 21.85 pounds in size medium with ballistic plates. The SPCS has adjustable shoulder and side straps to secure a proper fit and to keep the vest in place with minimal shifting during wear. Other features include padded shoulders, a 500 denier Cordura™ outer carrier, cable release, wrap-to-front design for a secure fit with easy donning, man-down drag strap, wire channel buttonholes, and Modular Lightweight Load-carrying Equipment (MOLLE) webbing for securing mission essential equipment.

The SPCS is compatible with the Soldier's basic fighting load, allowing carriage of essential equipment including M-4/M-16 magazines, a hydration SPCS, squad radio, night vision equipment, and comfortable, secure, and balanced wear of a day pack or rucksack.

The SPCS is available in five sizes from X-small through X-large.





Advanced Bomb Suit (ABS)

MISSION

Protects the Explosive Ordnance Disposal (EOD) Soldier from threats associated with improvised explosive devices, including fragmentation, blast overpressure, impact, heat, and flame.

The **Advanced Bomb Suit (ABS)** is a full body ensemble that leverages new material technology and design to improve protection, comfort, and ergonomics. To minimize weight and maximize flexibility, fragmentation protection is provided at various levels, specific to body regions, based on wounding potential. Blast overpressure protection is provided to the front of the thorax. Impact protection is provided to the head and spine. Heat and flame protection are provided by flame resistant materials. The suit includes an ice-based cooling system to extend mission duration. A hand protection module provides increased protection. The system can be taken off in less than 30 seconds. All ballistic inserts are removable to facilitate laundering and repair. The system is equipped with provisions that allow for future communications, performance, and capability upgrades.





**Advanced Bomb Suit
(ABS) | PEO Soldier
Portfolio FY2011**

Body Armor, Concealable (CBA)

MISSION

Provides optimum mobility, protection, comfort, and suitability for operational environments ranging from police duties to support of operations other than war.

Concealable Body Armor (CBA) is a concealable, lightweight, and flexible vest that allows free range of motion and protection against ballistic and stab threats. The CBA is optimized to be comfortable for wear over extended periods of time.

The CBA is intended to be worn by Soldiers in military police units, corrections, confinement, and law enforcement operations, Department of Defense investigative and security components, and other U.S. military forces.

The missions of these service personnel expose them to a variety of threats from small arms (handguns and small caliber weapons), knives, blades, spikes, and other improvised weaponry. The CBA offers ballistic protection, National Institute of Justice (NIJ) Level IIIA, and stab/spike resistance NIJ Level 3 protections with maximum torso coverage. The torso coverage protects against ballistics for a 9mm, full metal jacket, 124-grain bullet, and against stabs from knife blades and spike weapons.





**Body Armor, Concealable
(CBA) | PEO Soldier
Portfolio FY2011**

Advanced Combat Helmet (ACH)

MISSION

Provides the Soldier improved ballistic protection, stability, and comfort without degrading vision or hearing.

The **Advanced Combat Helmet (ACH)** is a modular system that weighs less, fits better, and is more comfortable than its predecessor. Modular, flame-retardant, and moisture-resistant pads act as the suspension system between the wearer's head and the helmet. The cotton/polyester chin strap, a four-point design, allows for quick adjustment and includes a new Ballistic Protective Pad for the neck that adds ballistic protection between the bottom of the helmet shell and the top of the Interceptor Body Armor collar. The edge of the ACH shell is finished with rubber trim. The ACH is available in five sizes from small through XX-large.



Product Manager Soldier
Protective Equipment

Project Manager Soldier Protection
and Individual Equipment



Advanced Combat Helmet Pads

MISSION

Provides the Soldier with impact protection that significantly reduces the severity of head trauma.

The **Advanced Combat Helmet Pads** suspension system, when properly inserted into the Advanced Combat Helmet (ACH), provides a non-ballistic impact force protection level of 150g against impacts of 10 feet per second, thereby significantly reducing the severity of head trauma to Soldiers. The system features a series of modular, lightweight, and moisture-resistant pads that act as the suspension system between the wearer's head and the helmet shell. The pads are easily attached, removed, and reattached to the inside helmet shell via hook tape disks permanently attached to the inside of the helmet shell.





Combat Vehicle Crewman Helmet (CVCH)

MISSION

Provides ballistic protection to the Soldier's head, temples, ears, and neck from fragmenting munitions without degrading vision, stability, and hearing.

The **Combat Vehicle Crewman Helmet (CVCH)** consists of a rigid, compression-molded outer shell constructed of Aramid Kevlar fabric coated with phenolic and polyvinyl butyral resins. The shell has rubber-edging adhesive along its peripheral contour.

The liner is constructed with energy-absorbing foam sections enclosed in a flame-resistant Nomex mesh fabric. The CVCH is attached to a fabric mesh inner liner by snap fasteners and hook-and-pile tape. Leather fastener mounts on the front of the helmet are used to attach the shell to the chin strap.



**Combat Vehicle Crewman
Helmet (CVCH) | PEO Soldier
Portfolio FY2011**

Generation II Helmet Sensor (HS)

MISSION

Detects and provides analysis of explosions and other impact events that can lead to head trauma.

The **Generation (GEN) II Helmet Sensor (HS)** is a technology upgrade in power management, storage capacity, and data exchange methods from those implemented in the HS program.

While maintaining or reducing the sensor’s size, the upgrades will provide a state-of-the-art data collection system that can be used to measure and record impact and blast overpressure associated with improvised explosive devices and other events that may cause concussions in an operational environment.



Enhanced Combat Helmet (ECH)

MISSION

Enhances ballistic protection, stability, and comfort without degrading the Soldier's field of vision and hearing.

The **Enhanced Combat Helmet (ECH)** is a joint PEO Soldier/Marine Corps Systems Command developmental effort that will provide increased protection against ballistic and fragmentation threats. It uses advanced thermoplastic materials that require different manufacturing processes than those associated with resin-impregnated para-aramids. The materials are ultrahigh molecular weight polyethylene.



Military Combat Eye Protection (MCEP), Goggles

MISSION

Provides Soldiers with protection from ballistic, ultraviolet, and laser threats to reduce the risk of eye injuries.

The **Military Combat Eye Protection (MCEP)** program provides modern optical protection in a variety of styles and sizes. By giving Soldiers choices in modern eyewear that meets mission needs, the MCEP improves Soldier acceptance of approved eyewear and reduces the likelihood of eye injuries.

The MCEP program qualifies commercial eyewear products through rigorous testing. Ballistic fragmentation, optical, operational testing, and certification to American National Standards Institute (ANSI) Z87.1 Standard for Occupational and Educational Personal Eye and Face Protection Devices are among the tests performed prior to consideration of a product for acceptance. Approved products are included on a Qualified Product List for eyewear.

Goggles currently listed include: Arena Flakjak, ESS Land Ops, ESS Profile NVG, Revision Desert Locust, and Smith Optics Outside the Wire (OTW). For Soldiers who require corrective lenses, three goggles, the ESS Profile NVG, Revision Desert Locust, and the Smith Optics OTW, have approved prescription lens carriers. Regular prescription glasses can be worn underneath the ESS Land Ops goggle. All items have assigned national stock numbers and may be purchased through normal supply channels. Service members who require a prescription may obtain the appropriate prescription lens carrier for their device through their garrison optometry clinic, deployed optometry clinic, or medical support section. Deployed soldiers may also obtain replacement prescription lenses through the G-Eyes website: <https://g-eyes.amedd.army.mil/>.



Arena Flakjak



ESS Land Ops



ESS Profile NVG



Revision Desert Locust



Smith Optics Outside the Wire



Military Combat Eye Protection (MCEP), Spectacles

MISSION

Provides Soldiers with protection from ballistic, ultraviolet, and laser threats to reduce the risk of eye injuries.

The **Military Combat Eye Protection (MCEP)** program provides modern optical protection in a variety of styles and sizes. By giving Soldiers choices in modern eyewear that meets mission needs, the MCEP improves Soldier acceptance of approved eyewear and reduces the likelihood of eye injuries. The MCEP provides spectacles for both prescription and nonprescription wearers.

The MCEP program qualifies commercial eyewear products through rigorous testing. Ballistic fragmentation, optical, operational testing, and certification to American National Standards Institute (ANSI) Z87.1 Standard for Occupational and Educational Personal Eye and Face Protection Devices are among the tests performed prior to consideration of a product for acceptance. Approved products are included on a Qualified Product List for eyewear.

Spectacles currently listed include: ESS Crossbow, Oakley SI Ballistic M Frame 2.0, Revision Sawfly, Smith Optics Aegis, UVEX Genesis, UVEX XC, Wiley X SG-1, Wiley X PT-1, and Wiley X Talon. For Soldiers who require corrective lenses, the ESS Crossbow, Oakley SI Ballistic M Frame 2.0, Revision Sawfly, Smith Optics Aegis, UVEX Genesis, UVEX XC, and Wiley X Talon have approved prescription lens carriers. All items have assigned national stock numbers and may be purchased through normal supply channels. Service members who require a prescription may obtain the appropriate prescription lens carrier for their device through their garrison optometry clinic, deployed optometry clinic, or medical support section. Deployed soldiers may also obtain replacement prescription lenses through the G-Eyes website: <https://g-eyes.amedd.army.mil/>.



ESS Crossbow



Oakley SI Ballistic M Frame 2.0



Revision Sawfly



Smith Optics Aegis



UVEX Genesis



UVEX XC



Wiley X PT-1



Wiley X SG-1



Wiley X Talon



Ballistic and Non-Ballistic Protection

MISSION

Provides the Soldier with face, torso, and leg protection from a wide variety of threats during operations.

Ballistic and Non-Ballistic Protection is designed to enhance protection for Soldiers during a broad spectrum of operations. Items include Civil Disturbance Protective Gear, which provides face, torso, and leg protection from debris, liquids, hand-thrown objects, and direct or indirect fire. Ballistic protection items meet the National Institute of Justice Level IIIA requirements for 9mm and .44 Magnum bullet resistance.

The **Ballistic Body Shield** is made of Spectra-Shield; **Shin Guards** are made of Kevlar KM2; and the **Ballistic Face Shield** is made of acrylic and bullet-resistant polycarbonate materials. **Non-Ballistic Face and Body Shields** are made of transparent polycarbonate materials; non-ballistic shin guards are made of hard plastics.



*Ballistic Body Shield, Shin Guards,
and Ballistic Face Shield*



Non-Ballistic Face and Body Shields

Soldier Protective Equipment Future Initiatives

HEAD GEAR SYSTEM

Recent experiences in Operations Iraqi Freedom and Enduring Freedom have identified the need to integrate head protection against ballistics, fragmentation, blast, blunt force, flash heat, and noise into a single lightweight, modular, scalable headgear system. Program Executive Office (PEO) Soldier is working to develop a Soldier-centric Head Gear System (HGS) that provides ballistic and traumatic brain injury protection as well as face, neck, and hearing protection. The HGS also will incorporate integrated sensor inputs along with display hardware and software for increased situational awareness. The system will address technology gaps identified by the Capabilities Development Integration Directorate of the Army's Training and Doctrine Command by including:

- Upgradable protection against impact and ballistic threats.
- Optimized display and sensor input, both audio and visual, to deliver actionable information to the warfighter.
- Modular, integrated chemical, biological, radiological, and nuclear (CBRN) protection.
- Face, neck, and hearing protection.
- Increased visual and audio data representation of the warfighter.
- Optimized sensor packages for use in all natural and man-made conditions, such as obscurants.

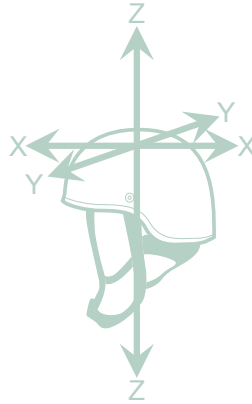
The headgear system will be based on a modular platform for which protection levels and system enhancements can be added or removed based on mission requirements and/or predetermined threat assessments. HGS will be a lightweight, multifunctional system that protects Soldiers from wounds to the face without degrading range of motion or mobility. The system will monitor the degradation of a Soldier's ability to continue operations and will record exposure to blast events (e.g., improvised explosive devices, vehicles explosions). The HGS development effort will mature, evaluate, integrate, and demonstrate technologies for improved system performance in the areas of ballistic and impact protection, hearing protection and hearing enhancement, video displays, audio and communications systems, training sensors, and CBRN capabilities, with the overarching goal of improving comfort and combat-effectiveness. The projected completion date for this initiative is FY12.

INDIVIDUAL BODY ARMOR

PEO Soldier is working toward the goal of body armor weight reduction using advanced fibers, improved ceramics, and optimized integration techniques for body armors. This effort will leverage the Modular Body Armor Platform Design and incorporate a review of the ANSUR II Anthropometric Model to re-evaluate the fifth to ninety-fifth percentile area of coverage requirements. Another major initiative is to develop advanced, low-cost technology for Smart Armor that has embedded microsensors for fast, reliable damage self-testing without using sophisticated instrumentation.

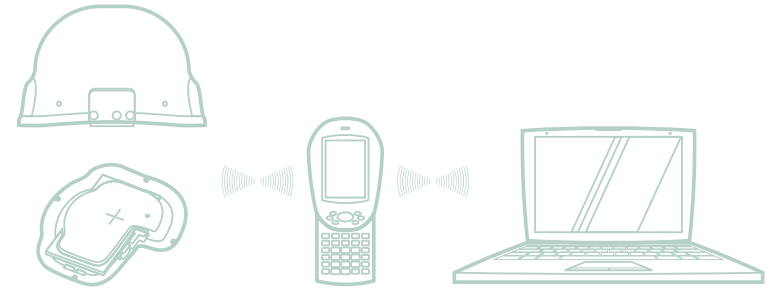
NEXT GENERATION HELMET SENSOR

PEO Soldier is aggressively pursuing the development and production of the Next Generation Helmet Sensor, an unobtrusive and unencumbered device integrated into combat helmets to measure, record, and store physical motion associated with kinetic energy threats such as ballistic impacts, blast peak overpressures, and a wide range of other impacts. This device will be fielded with a state-of-the-art data collection system that measures the magnitude and direction of both linear and angular accelerations, corresponding to six degrees of freedom. Improvements will include a reduction in the sensor's platform size and weight, extending the device's battery life to enable recharging for 12 months, and utilizing wireless technologies to query the sensor's operational history and functionality. The sensor, when employed, provides the Army with the capability to capture robust field data, sensing, measuring, and recording high-energy events affecting the Soldier. The sensor data collected will provide medical researchers with information to establish an injury correlation that helps discriminate between enemy attacks and the normal head and dynamic helmet motions observed in typical field activities. The data library created from the sensor data will support the development of an injury-risk criterion and will help identify sensor data trends that could point to events strongly correlated with injury. The Next Generation Helmet Sensor is scheduled for completion in FY12.



Six DoF allows for measuring linear and rotational accelerations in three-dimensional space

Concept Model GEN II



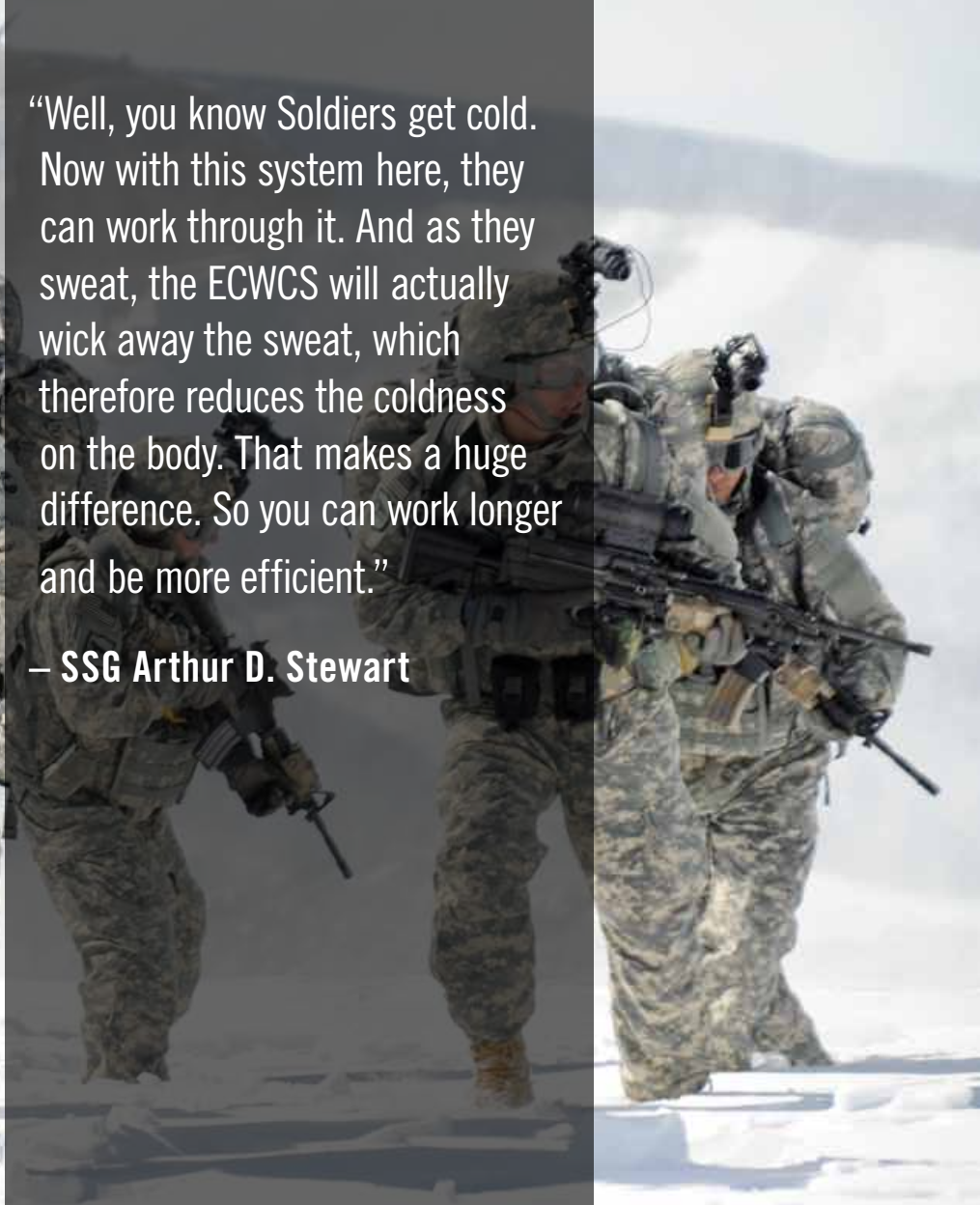
Size and weight reduction decreases Soldier load and interference with added sensory components and battery life

Wireless data transfer provides more efficient CONOPS



“Well, you know Soldiers get cold. Now with this system here, they can work through it. And as they sweat, the ECWCS will actually wick away the sweat, which therefore reduces the coldness on the body. That makes a huge difference. So you can work longer and be more efficient.”

– SSG Arthur D. Stewart



PRODUCT MANAGER SOLDIER CLOTHING AND INDIVIDUAL EQUIPMENT (PM SCIE)

PM SCIE supports Soldiers in multiple operational environments and improves their survivability, health, safety, mobility, and sustainability by providing safe, durable, and operationally effective individual and unit equipment. PM SCIE provides technologically advanced tactical and environmental protective clothing, individual chemical protective gear, load-carrying systems, and personnel parachutes and other airdrop equipment.



The **Operation Enduring Freedom Resistant Army Combat Uniform (OEF FR ACU)**, which uses the Operation Enduring Freedom Camouflage Pattern (OCP), will provide concealment for Soldiers operating in Afghanistan's multiple-terrain environment.



The **Mass Tactical Canopy (T-11) Personnel Parachute System** provides paratroopers with a reduced rate of descent, allowing safe conduct of airborne operations day or night; in temperate, hot and extreme cold weather conditions; on water drop zones; and at high altitudes.

Army Service Uniform (ASU)

MISSION

Provides a basic set of components that allows Soldiers to dress from the lowest to the highest end of service uniforms with little variation required.

The **Army Service Uniform (ASU)** is based on the Army Blue Uniform. The designs of the men's and women's Army Blue Uniform coats remain unchanged. The belted trousers and slacks with a traditional low waistline will be available for daily wear. The high waist men's trousers traditionally worn with suspenders will be retained for wear with the Army Mess Dress Uniform. The men's coat, women's coat, women's skirt, general officer trousers, and slacks are shade Army Blue 450. The enlisted and officer/non-commissioned officer men's trousers and women's slacks are shade Army Blue 451. The ASU is made of durable materials that are suitable for daily use without special care. The fabric of the ASU coat, trousers, slacks and skirt is a blend of 55 percent polyester and 45 percent wool.

A new white herringbone shirt made of 65 percent polyester and 35 percent cotton will be for daily wear, and commercial off-the-shelf white dress shirts will be worn for ceremonial and formal occasions.

Officers and NCOs (corporal and above) will wear gold stripes on the trouser/slacks. Enlisted Soldiers (specialist and below) will have plain legs on the trousers/slacks and will wear new smaller service stripes on the left coat sleeve. One service stripe is worn for every three years of honorable service. Officers and enlisted Soldiers will wear overseas service bars on the right coat sleeve. One overseas service bar is authorized for six months of overseas service in designated areas during specified periods. The current black accessories, such as the windbreaker, all-weather coat, overcoat, and sweaters, may be worn with the ASU.



Army Service Uniform
(ASU) | PEO Soldier
Portfolio FY2011

Personal/Optional Clothing and Equipment

MISSION

Provides a variety of standard issue and new clothing, insignia, and personal equipment to enhance fit, comfort, alterability, and appearance.

The **Beret** is a one-piece, unlined wool shell with a leather headband, draw cord, and lined badge-stay for attachment of insignia. The standard beret is black. Airborne Soldiers wear maroon berets, Special Forces wear green, and Rangers wear tan berets. The beret is standard-issue headgear.

The **All-Weather Coat** functions as a raincoat and a topcoat; double-breasted with a six-button front; set-in sleeves; pointed, button-down shoulder and sleeve straps; a front gun patch flap; two vertical welt pockets with pass-through slits; belt; center back pleat vent and half cape back; in black polyester/cotton blend.

The **Overcoat** is optional; it is warmer and dressier than the All-Weather Coat.

The **Men's Green Class A Service Uniform** includes a coat, trousers, shirt, necktie, belt, and buckle.

The **Women's Class A Uniform** includes slacks, a skirt, coat, shirt, neck tab, belt, and buckle.

The **Men's Class B Service Uniform** omits the coat and tie if the short-sleeve shirt is worn.

The **Women's Class B Service Uniform** is redesigned to improve fit, comfort, alterability, and appearance. It omits the coat or coat and neck tab, depending upon the shirt worn.

The **Maternity Cardigan Sweater** is optional; worn with maternity service uniforms; V-neck cardigan, longer in front than in back, has elbow and shoulder patches, epaulets with hook-and-loop attachments, and a six-button front.

The **White Cardigan Sweater** is optional; V-neck cardigan design with a rib knit trim around the front opening and neckline, rib knit cuffs, two lower front pockets, and a six-button front.

The **Poromeric Oxfords** are plain-toed shoes with removable cushioned insoles, skid-resistant soles, and breathable comfort lining.



Men's & Women's Class A Uniform

Poromeric Oxfords

Beret

White Cardigan Sweater

Maternity Cardigan Sweater

All-Weather Coat

Army Combat Uniform (ACU)

MISSION

Enhances mission performance with a functional uniform that can be tailored to situational demands.

The **Army Combat Uniform (ACU)** consists of a jacket and trousers in the Universal Camouflage Pattern (UCP). The ACU is normally worn with a black beret or a patrol cap in UCP, a moisture-wicking T-shirt, and Army combat boots (temperate or hot weather).

The ACU enhances Soldier performance by providing a functional, ergonomic uniform that can be tailored based on the mission. Based on Soldier satisfaction surveys, durability, and cost, a number of significant enhancements are envisioned for the ACU, including buttons for the cargo pockets, a reinforced crotch, and improved attachment of the infrared tab.

The ACU, including component materials, is manufactured in the United States using the same industrial base that produced the Battle Dress Uniform. This ensures the highest quality control and supports the American workforce.

The ACU is worn with ancillary items, including hook-backed embroidered U.S. Army tapes, name tapes, and rank and shoulder sleeve insignia. The ACU is machine-washable and contains a wrinkle-free treatment, decreasing out-of-pocket expense to Soldiers for expensive cleaning and starching.





Army Aircrew Combat Uniform (A2CU)

MISSION

Enhances aircrew comfort and provides flash fire protection during pre-flight, flight, post-flight, refueling, and other aviation operations.

The **Army Aircrew Combat Uniform (A2CU)** is a two-piece flight suit in the Universal Camouflage Pattern and Operation Enduring Freedom (OEF) Camouflage Pattern (OCP). The coat is similar to the ACU in design, with a stand-up collar featuring a front extension, shoulder patches, a front zipper, two inside hanging chest pockets with flaps; adjustable waist; two-piece set-in sleeves with elbow patches; two sleeve utility pockets with flaps and Identification Friend or Foe (IFF) tabs; and two lower sleeve pencil pockets with flaps. It can be worn with the Air Warrior Microclimate Cooling Vest. The trousers have nine pockets: two thigh pockets; two calf pockets with external tool pockets; one knife pocket with lanyard (on the left thigh); and two side hanging pockets. Pockets (except for the side hanging pockets and the lower leg external tool pockets) have flaps and zippers.

The A2CU upgrades the current Improved Aviation Battle Dress Uniform protective clothing system and provides operational effectiveness, fit, suitability, and durability, addressing near-term Air Warrior requirements.





Improved Combat Vehicle Crewman (iCVC) Coverall

MISSION

Provides combat vehicle crewmen with extraction capability and improved protection from flame and flash fires in all weather conditions.

The **Improved Combat Vehicle Crewman (iCVC) Coverall** is a one-piece fire-resistant garment with a front entry, zippered closure with dual sliders. It has a drop seat, upper back extraction strap, collar with front throat protection, zippers on the sleeves and legs, and nine pockets. The coverall is a blend of inherently fire-resistant fibers (39 percent Nomex), synthetic fibers (31 percent nylon), and 30 percent cotton. It is available in the Universal Camouflage Pattern and Operation Enduring Freedom (OEF) Camouflage Pattern (OCP).





Army Combat Shirt (ACS)

MISSION

Provides the Soldier improved comfort and enhanced flame and thermal protection.

The fire-resistant (FR) **Army Combat Shirt (ACS)** is worn under the Soldier's Interceptor Body Armor instead of the Army Combat Uniform or the Army Aircrew Combat Uniform jacket and standard-issue T-shirt, reducing bulk for Soldiers operating in extreme climates.

The torso of the shirt is made of a highly breathable, moisture-wicking cotton/ rayon/polyester/spandex blend that increases moisture vapor transmission, heat stress relief, and comfort when worn with the Improved Outer Tactical Vest. The FR sleeves are in the Universal Camouflage Pattern or Operation Enduring Freedom (OEF) Camouflage Pattern (OCP) and have integrated anti-abrasion elbow pads, shoulder pockets, infrared identification tags, and hook-and-loop fasteners for the name, rank, unit patch, and American flag. The shirt also features flat-seam shoulders and side panels for comfort, and is treated using a state-of-the-art FR process that fuses to the fibers. It is washable and maintains its fire resistance for the life of the garment.





Infrared Retroreflective (IR) Flag

MISSION

Helps Soldiers identify friendly forces when near-infrared vision systems are required.

The **Infrared Retroreflective (IR) Flag** is an attachable patch that enables the identification of friendly forces. The flag becomes visible in dark environments when observed with near-infrared vision systems, such as Night Vision Goggles and near-infrared illuminators. The IR Flag is made of micro-prismatic, retroreflective black polymeric film contrasted with opaque desert sand stars and stripes. The IR Flag, which is 3.5 inches long by 2 inches wide, is secured to military uniforms with hook fastener tape.





Fire Resistant Environmental Ensemble (FREE)

MISSION

Provides Soldiers a multi-layered, versatile, insulating system that is adaptable to varying operational and environmental conditions.

The **Fire Resistant Environmental Ensemble (FREE)** was engineered for comfort and functionality in and out of aircraft and armored vehicles. It is a comprehensive clothing system from skin to outerwear, from head to toe, and was designed to be compatible with current issue personal protective equipment. All layers of the FREE system incorporate fire-resistant technologies to offer protection and comfort.

FREE will replace existing aviation and combat vehicle crewmen cold weather clothing. It is color-compatible (in Universal Camouflage Pattern and Operation Enduring Freedom Camouflage Pattern) with ground Soldier uniforms. The system's adaptability gives Soldiers more personal protection choices, a crucial factor in responding to current threats while facing extreme climate conditions.





Next to Skin Under Layer



Base Layer



Mid-weight Layer



Duty Uniform: (r) Army Aircrew Combat Uniform; (l) Improved Combat Vehicle Crewman (iCVC) Coverall



Light Weather Outer Layer (LWOL)



Intermediate Weather Outer Layer (IWOL)



Extreme Weather Outer Layer (EWOL)



FR riggers belt



FR glove liner



FR socks

Army Elements Fleece (AEF)

MISSION

Provides enhanced fire-resistant clothing system to aviators.

The **Army Elements Fleece (AEF)** is a versatile, insulating layer that allows aviation crews to adapt to varying mission requirements and environmental conditions. The primary fabric has an integrated Nomex fleece inner surface to insulate the Soldier against cold temperatures. The fabric is water resistant and windproof, but also breathable, to protect the Soldier in inclement weather including wind, rain, sleet, and snow. The outer layer is printed in the Universal Camouflage Pattern.

PROGRAM STATUS

- ✓ **FY09** Fielded through the Rapid Fielding Initiative (RFI) and was an interim solution until the Fire Resistant Environmental Ensemble (FREE) was procured

PROJECTED ACTIVITIES

- + **FY10–11** Transition from fielding AEF to FREE via RFI





Generation III Extended Cold Weather Clothing System (GEN III ECWCS)

MISSION

Provides Soldiers a multi-layered, versatile insulating system that is adaptable to varying operational and environmental conditions.

The multi-layered insulating system of the **Generation III Extended Cold Weather Clothing System (GEN III ECWCS)** allows the Soldier to adapt to varying mission requirements and environmental conditions. Materials offer a greater range of breathability and environmental protection, providing greater versatility in meeting Soldiers' needs.

GEN III ECWCS utilizes an innovative design that reduces bulk, taking up 33 percent less space, and weighing 25 percent less than its predecessor systems. Each piece of GEN III ECWCS functions either alone or in concert with other components as a system, thus providing more options for the Soldier and enabling seamless integration with load-bearing equipment and body armor configurations. The Gen III ECWCS design allows moisture to escape and at the same time has water-resistant properties.

GEN III ECWCS is a 12-piece kit that enables Soldiers to utilize seven different layers, depending on the mission and environment. The system functions through insulation, which resists the transmission of heat, traps air, and wicks moisture away from the body; layering, which increases air space and allows easy adjustment to a Soldier's activity level; and ventilation, which allows moisture to escape. By mixing and matching Gen III ECWCS components, Soldiers can protect themselves from temperatures ranging from 40 degrees Fahrenheit to minus 60 degrees.

PROGRAM STATUS

- ✓ **4QFY08** Sustainment transition to Defense Supply Center Philadelphia
- ✓ **4QFY08** Fielded to deploying Soldiers
- ✓ **FY09–10** Fielded to deploying Soldiers via Rapid Fielding Initiative (RFI)

PROJECTED ACTIVITIES

- + **FY10–11** Continue to field via RFI



Lightweight Cold Weather Undershirt/Drawers

Midweight Cold Weather Shirt/Drawers

Fleece Cold Weather Jacket

Wind Cold Weather Jacket

Soft Shell Cold Weather Jacket and Trousers

Extreme Cold/Wet Weather Jacket and Trousers

Extreme Cold Weather Parka/Trousers

Army Combat Boot (Temperate Weather)

MISSION

Provides combat personnel with environmental and camouflage foot protection in a variety of battlespace environments.

The **Army Combat Boot (Temperate Weather)** is a tan-colored, temperate weather combat boot with a moisture-resistant, rough-side-out cattlehide leather and nylon duck upper. It contains a waterproof breathable membrane and integrated safety features such as limited fire-, conductive heat-, and liquid fuel penetration protection. The sole consists of a three-layer, shock-absorbing soling system with an abrasion- and slip-resistant solid rubber outsole. It has a combination eyelet and speed-lace lacing system.



Army Combat Boot
(Temperate Weather) | PEO
Soldier Portfolio FY2011

Cold (Wet and Dry) Weather and Specialty Boots

MISSION

Provides the Soldier with environmental foot protection suitable for wet and dry cold weather conditions.

The **Extreme Cold Weather Boot (ECWB)** protects feet in dry-cold conditions between 60 degrees Fahrenheit and minus 20 degrees. Boots are white and have six pairs of eyelets and insulation consisting of three layers of needle-punched polyester foam hermetically sealed within an outer and inner layer of rubber. The boot has a pressure-release valve to adjust internal air pressure in the boot during high-altitude operations.

The **Intermediate Cold Wet Boot with Removable Liner (ICWB w/RL)** is a tan, cold-wet weather combat boot with a moisture-resistant, rough-side-out cattlehide leather upper measuring 10 inches in height. Boots are worn in cold, wet environments where the mean monthly temperature ranges between 14 and 32 degrees Fahrenheit. This boot contains a waterproof breathable membrane and is issued with two pairs of insulated removable booties. It has a shock-attenuating soling system with a slip- and abrasion-resistant rubber outsole. It has a combination eyelet and speed-lace lacing system.

The **Modular Boot System (MBS)** is a multifunctional, multi-theater footwear system that will afford the Soldier environmental protection and added capability in environmental conditions ranging from minus 20 to 110 degrees Fahrenheit. It is a developmental program designed to replace the current Army Combat Boot (Hot Weather), Army Combat Boot (Temperate Weather), ICWB w/RL and black Cold Weather Boot, which has already been phased out.

The **Mountain Combat Boot (MCB)** is a durable, hiking-style mountain combat boot designed to provide a combat-effective boot with the ankle stability, support, and mobility required in a rugged mountainous environment.



Intermediate Cold Wet Boot with Removable Liner (ICWB w/RL)



Extreme Cold Weather Boot (ECWB)



Mountain Combat Boot (MCB)



Modular Boot System (MBS)

Hot (Wet and Dry) Weather Boots

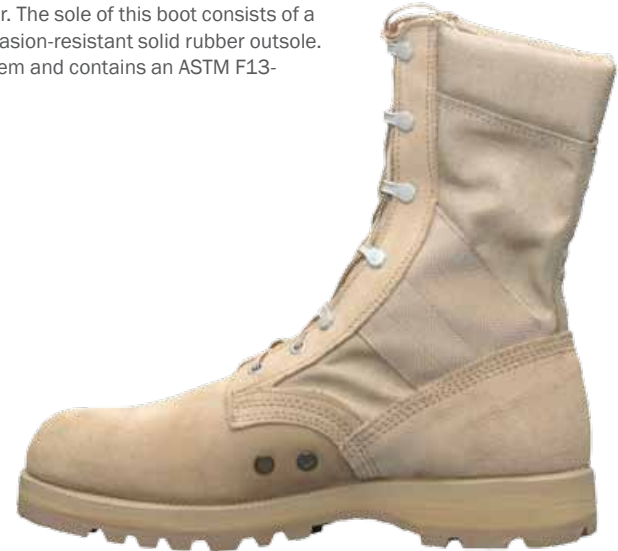
MISSION

Provides the Soldier with environmental and camouflage protection in wet and dry hot weather battlespace environments.

The **Army Combat Boot (Hot Weather) [ACB (HW)]** is a tan-colored, hot weather combat boot made with moisture-resistant, rough-side-out cattlehide leather and nylon duck upper with two drainage eyelets on the inner arch. The soling system of this boot consists of a three-layer, shock-absorbing soling system with an abrasion-resistant outsole. It has a combination eyelet and speed-lace lacing system.

The **Army Combat Boot (Hot Weather-Fire Resistant) [ACB (HW-FR)]** is a tan-colored, fire- and conductive heat-resistant hot weather combat boot made with moisture-resistant, rough-side-out cattlehide leather and fabric upper designed for U.S. Army flight personnel and combat vehicle crewmen. The soling system of this boot consists of a three-layer, shock-absorbing soling system with a solid rubber, abrasion-resistant outsole. It has a combination eyelet and speed-lace lacing system.

The **Army Combat Boot (Hot Weather-Safety Toe) [ACB (HW-ST)]** is the safety toe version of the ACB (HW). It is a tan-colored, hot weather combat boot made with moisture-resistant, rough-side-out cattlehide leather and nylon duck upper. The sole of this boot consists of a three-layer, shock absorbing soling system with an abrasion-resistant solid rubber outsole. It has a combination eyelet and speed-lace lacing system and contains an ASTM F13-compliant steel toe.



*Army Combat Boot (Hot Weather)
[ACB (HW)]*



Army Combat Boot (Hot Weather-
Fire Resistant) [ACB (HW-FR)]

Intermediate Cold Wet Glove (ICWG)

MISSION

Protects Soldiers' hands in intermediate environmental conditions.

The waterproof **Intermediate Cold Wet Glove (ICWG)** protects hands in temperatures from approximately 0 to 40 degrees Fahrenheit. The recently improved ICWG now features less bulky insulation in the trigger finger to increase dexterity. The new glove has eliminated the flexor design and has a waterproof/breathable membrane. The ICWG can be worn alone or over lightweight inserts.





Gloves, Cold Weather

MISSION

Provides the Soldier with full cold weather hand protection and camouflage for wet and dry environments.

Intermediate Cold Weather (ICW) Flyer's Gloves are designed to protect against cold weather. Nomex fire-resistant knit fabric protects the back of the hand and black sheepskin leather protects the inside of the hand from palm to fingertips.

Extreme Cold Weather (ECW) Mitten Set is worn over other handwear to provide extra protection in extremely cold climates. In situations requiring dexterity where the mittens must be temporarily removed, the Soldier can easily secure the mittens with the included suspension harness. The ECW Mitten Set includes the outer shells, removable insulation, and a cotton tape and cotton braid suspension harness. The outer shells of the mitten set are made of wind-resistant and water-repellent cotton/nylon blend, have deerskin leather palms, and have wool pile material on the backs of the hands. The removable insulating liner is made of polyester batting with a lightweight ripstop nylon cover fabric. The mittens have a long gauntlet with adjustable closure straps across the top of the wrist and the top of the gauntlet.

Cold Weather Trigger Finger (TF) Mitten Shells are worn in temperatures too cold for five finger gloves and provide added dexterity over the ECW mitten by having trigger fingers. The shell is a wind-resistant and water-repellent cotton/nylon blend with leather palms, thumb compartments, trigger finger and combined second, third, and fourth finger compartments. The mitten shells have long gauntlets with elastic around the top, a tape loop at the top for attaching a suspension cord, and an adjustable closure strap on the back across the wrist. The mitten shells have insulation across the backs of the hand and around the fingers. The TF Mitten Shells can be worn with or without the Cold Weather Trigger Finger Mitten Inserts.



*Cold Weather Trigger Finger (TF)
Mitten Inserts*



Snow Camouflage White Mitten Shells



Extreme Cold Weather (ECW) Mitten Set

Gloves, Temperate and Hot Weather

MISSION

Protects the Soldier's hands while moving objects, navigating rough terrain, and during mission operations.

The **Combat Glove** is fire-resistant para- or meta-aramid and contains conductive anti-static fiber. The glove is form fitting, offering maximum dexterity, tactility, flexibility, and flame and cut protection. The leather palm is hair sheepskin or goat kidskin. Thread materials are 100 percent fire-resistant para- or meta-aramid. The gloves can be laundered without losing their protective properties.

The **Combat Vehicle Crewman's (CVC) Glove** and the **Summer Flyer's Glove** are lightweight, unlined cloth and leather gloves. The CVC Glove is made of fire-resistant Simplex knit Nomex and has leather palms made of water-resistant cattlehide or horsehide. The Summer Flyer's Glove is made of fire-resistant Simplex knit Nomex with palms made of water-resistant hairsheep leather. Both gloves can be laundered without losing their fire resistance properties.



Summer Flyer's Glove

Combat Vehicle Crewman's (CVC) Glove

Combat Glove

Gloves, Utility

MISSION

Protects the Soldier's hands in a variety of potentially dangerous situations and settings.

Barbed Wire Handlers' Gloves protect the Soldier's hands when they must handle barbed tape, barbed wire, razor wire, and other similar materials. The gloves have a four-finger-and-thumb Clute design with a 5-inch gauntlet. The gloves are made of split-leather cowhide. Additionally the leather palms are lined with cotton flannel and the gauntlet areas are lined with cotton duck. The palms and the insides of the fingers and thumbs are reinforced with leather strips stapled one-quarter of an inch apart.

Men's and Women's Heavy Duty Gloves are Gunn-cut cowhide or horsehide gloves and are intended for heavy work. The gloves have continuous thumbs with leather welts inserted in the thumb seams. The seams at the base of the fingers also include a reinforcing leather welt, which is upturned to cover the stitching. An additional layer of leather reinforces the palms. The gloves have an adjustable strap and buckle on the back.

Light Duty Utility Gloves (LDUG) are multifunctional but best suited for light work. The March 2008 redesign improved Soldier dexterity, tactility, and comfort by reducing the number of seams in the fingers, and the newer three-dimensional shape gives the gloves less bulk.

Fuel Handlers' Gloves (FHG) protect against kerosene-based fuels. The gloves are made of Nomex Simplex knit with leather palms, and are liquid-proof and fire-resistant, providing fuel handlers with maximized protection, performance, and comfort. The gloves have full Gore-Tex® direct grip glove inserts for protection against the fuels. The glove insert also makes this glove waterproof.



Light Duty Utility Gloves (LDUG)



Men's and Women's Heavy Duty Gloves



Fuel Handler's Gloves (FHG)



Barbed Wire Handlers' Gloves

Utility Uniforms and Accessories

MISSION

Improves Soldier comfort with climate-appropriate utility uniforms and accessories that function as combat clothing or duty uniforms.

The **Improved Boot Sock** is over-the-calf style, with a double-welt top and a double-covered elastic yarn that is continuous from the welt top to the ankle area. The fully reciprocal heel, toe, and foot area is padded with a half-cushion terry for blister protection. The entire ankle, heel, toe, and foot is knit 360 degrees with a main body yarn (terry yarn) and a silver-coated nylon yarn knit in the same position. The nylon yarn is permanently coated with 99.9 percent pure silver, is non-allergenic and antimicrobial, and provides protection against bacteria and fungi.

The **Insect Net** and **Insect Hat** are worn in tropical and semitropical areas when helmets are not worn. The hat has a soft crown and stitched brim, chin strap, and camouflage band. The net attaches to the hat by an elastic cord with two loops at the bottom to fasten buttons.

The **Fleece Cap** is foliage green, synthetic microfleece, and is 100 percent polyester; its bell-shape and pull-on style provide increased comfort and durability.

The **Hat, Sun Hot Weather (Boonie Hat)** has a soft crown, a standard-width quilted stitched brim, a chinstrap, and a camouflage band. The cloth is ripstop poplin, 50/50 percent cotton/nylon, and is Type III water-repellent. The hat comes in the Universal Camouflage Pattern and Operation Enduring Freedom Camouflage Pattern.

The **Rigger Belt** is a desert sand belt made of nylon rigger webbing and a parachute buckle. The belt offers increased comfort, durability, and functionality.

The **Sock Liner, Dress Sock** is a dual-purpose item worn by the male and female Soldier under all types of boot socks to prevent blisters. It can also be worn as a dress sock with black dress shoes. The socks are made of cotton yarn plied with stretch nylon yarn.

The **Brown Bath Towel** is issued in Soldiers' Clothing Bags for use in garrison and field environments. The terry cloth fabric is 70 percent polyester and 30 percent cotton. The towel is 20 inches by 40 inches.

Knee and Elbow Pads (KEP) provide dismounted Soldiers with protection for knees and elbows while engaged in tasks that subject these areas to possible injury or discomfort caused by impact, pressure, or protruding objects and debris (e.g., rocks, gravel, or glass).



Fleece Cap



Hat, Sun Hot Weather (Boonie Hat)



Improved Boot Sock



Knee and Elbow Pads



Rigger Belt



Brown Bath Towel

Modular Lightweight Load-carrying Equipment (MOLLE)

MISSION

Enables the Soldier to tailor individual loads to meet mission needs with modular, flexible, load-carrying equipment.

The **Modular Lightweight Load-carrying Equipment (MOLLE)** system consists of a large rucksack that can accommodate add-on components, and a fighting load carrier with removable pockets for rifleman, pistol, Squad Automatic Weapon, medic, and grenadier configurations. For short-duration missions, there is an assault pack and a waist pack. The modularity allows individuals to tailor the load to meet mission needs.

MOLLE was designed to replace the All-purpose Lightweight Individual Carrying Equipment and Integrated Individual Fighting System.





Load Carriage-Related Equipment

MISSION

Enables Soldiers to carry mission-essential equipment with minimal effect on mobility and survivability.

The **Entrenching Tool (E-Tool)**, a “D” handled shovel, has a collapsible feature that makes it easily transportable.

The **Mattock**, a supplement to the E-Tool, has a 24-inch wooden handle and a 12-inch steel head with mattock and axe blades. It can be used to cut tree roots and limbs, break rock, and loosen ground.

The **Equipment Belt Extender (EBE)**, a 4-inch equipment belt, has triple layers of 2.25-inch wide webbing with 2.25-inch side-release buckles sewn on each end.

The **Field Case** is designed to hold a first aid kit or compass. It attaches to an equipment belt or suspenders with a slide keeper.

The **Mounted Crewman Compartmented Equipment Bag (MCCEB)** is a compartmentalized bag designed to organize and carry the load of mounted crewman. The bag's three compartments have zippered openings with secured flaps, and the bag's shoulder straps allow for easy transport.



Entrenching Tool (E-Tool)



Field Case



Equipment Belt Extender (EBE)



Mattock

Individual Soldier Hydration

MISSION

Provides the Soldier with a portable means of hydration that interfaces with chemical-biological masks.

The **One-Quart Canteen**, a rigid plastic container, interfaces with the drinking tube of the chemical-biological protective mask via the nuclear, biological and chemical (NBC) cap, allowing Soldiers to drink from the canteen without removing their masks. The cover has an outer pocket for water purification tablets and attaches to the Soldier's equipment belt or load-carrying equipment.

The **Two-Quart Collapsible Canteen**, a flexible plastic container, interfaces with the drinking tube of the chemical-biological protective mask via the NBC cap, allowing Soldiers to drink without removing their masks. The canteen cover has an outer pocket for water purification tablets. The canteen can be carried over the shoulder using a strap or can be attached to the Soldier's equipment belt or load-carrying equipment. It collapses when drained for less bulk.

The **Cold Weather Canteen System**, a one-liter stainless steel canteen with insulated carrier, ensures sufficient Soldier hydration during operations in extremely cold environments (minus 40 degrees Fahrenheit). The system interfaces with the drinking tube of the chemical-biological protective mask using a cap adapter/mouthpiece of low thermal conductive material. The insulated carrier is designed to attach to the Soldier's equipment belt or load-carrying equipment.

The **Modular Lightweight Load-carrying Equipment (MOLLE) Hydration System**, an ergonomically designed water bladder with carrier, can be worn individually or integrated with load-bearing equipment or web harness systems. The bladder includes a drink tube with bite valve, a positive shut-off, and an exterior fill port. The MOLLE Hydration System is non-CBRN compatible. The carrier is made of abrasion-resistant 1000D Cordura™ nylon, has a sternum strap for added stability, and has a handle for filling on the go.

The **Multi-Purpose Personal Hydration System (MPHS)**, a CBRN hardened water bladder with carrier with identical specifications to the MOLLE Hydration System. The MPHS can be worn individually or integrated with load-bearing equipment or web harness systems. The bladder included a drink tube with bite valve, a connection the M-40 and M-50 series of protective masks, a positive shut-off, and an exterior fill port. The carrier is identical to the MOLLE Hydration System, made of abrasion-resistant 1000D Cordure nylon, has a sternum strap for added stability, and has a handle for filling on the go.

Individual Water Treatment Device (IWTD), an in-line capability that will provide Soldiers the capability to microbiologically purify local water sources, reducing their need to carry sufficient quantities of water to sustain them through the mission when bulk/bottled water is not available. The system will be compatible with current and future hydration systems.



One-Quart Canteen



Two-Quart Collapsible Canteen



Cold Weather Canteen System



Modular Lightweight Load-carrying Equipment (MOLLE) Hydration System

Family of Flashlights (FoF)

MISSION

Provides the Soldier with a complete illumination capability package that will replace the MX-991/U L shaped flashlight.

The **Family of Flashlights (FoF)** consists of a Hands-Free Helmet-Mounted Light (HFHL) that is capable of being attached to both the Advanced Combat Helmet and the Modular Lightweight Load-carrying Equipment (MOLLE) or the Interceptor Body Armor (IBA); a Handheld Tactical Light (HHTL); a Weapon Mountable Light/Illuminator (WML); and a Crew Served Weapons Light (CSWL). The focus of the FoF is to provide an increased illumination capability that is highly effective and more reliable than present lights or illuminators. The FoF fills a current capability gap by providing lighter, more versatile, and more durable, multifunctional lights that feature increased range and better power management, providing Soldiers with a complete illumination capability package that accommodates and supports a wide variety of roles.

The Soldier Enhancement Program (SEP) Executive Council recognized the need to improve the Soldier's illumination capabilities and approved the FoF as a SEP new start program in February 2005. The FoF improves the Soldier's ability to illuminate the battlefield, complete tasks, and perform a myriad of duties. The FoF will also improve the Soldier's ability to read maps, perform first aid and maintenance duties, traverse/navigate over terrain, signal, conduct searches, control crowd access points during the conduct of escalation of force, and perform target identification and target engagement tasks. The future variants of the FoF will considerably enhance the Soldiers' tactical advantage, survivability, and mobility.





Sleep Systems

MISSION

Provides combat personnel with modular-concept sleep equipment, enhancing Soldier comfort in diverse environmental conditions.

The **Modular Sleep System (MSS)** is a bag-within-a-bag. The MSS consists of a camouflaged, waterproof, breathable bivy cover, a lightweight patrol sleeping bag, and an intermediate cold weather sleeping bag. Compression sacks are included to store and carry the system. The MSS is available in colors compatible with the Universal Camouflage Pattern. The patrol bag provides cold weather protection from 35 to 50 degrees Fahrenheit. The intermediate bag provides cold weather protection from minus 5 to 35 degrees Fahrenheit. Together, the patrol bag and intermediate bags provide extreme cold weather protection in temperatures as low as minus 30 degrees Fahrenheit. The bivy cover can be used with each of three MSS configurations (patrol, intermediate, or combined) to be compatible with the environment in which the system is being used; the bivy cover provides environmental protection from wind and water. Sleeping bags are made of ripstop nylon fabrics and continuous filament polyester insulation; camouflage bivy cover is made with waterproof, breathable, coated or laminated nylon fabric; the compression sacks are made with water-resistant, durable nylon fabric.

The **Sleeping Mat** is a foliage green, closed-cell polyethylene foam pad. Two permanently attached straps secure the mat when in a rolled configuration for carrying. The mat is used as a ground insulator under the MSS to provide insulation from cold ground.

The **Self-Inflating Sleeping Mat** is used in the same manner as the sleeping mat, but has an open cell foam core sandwiched between, and laminated to, a foliage green, air-impermeable, coated nylon fabric with a plastic valve in one corner. Once unrolled, the air valve is opened, allowing air to enter the mat as the foam expands. The air valve is then closed to maintain the expanded mattress during use and later reopened to expel the air during rolling for carry and storage.



Self-Inflating Sleeping Mat



Sleeping Mat

Modular Sleep System (MSS)

Improved Camouflage Face Paint

MISSION

Provides camouflage solutions for the Soldier in the visible and near-infrared regions of the electromagnetic spectrum, as well as protection against thermal imagers and insects.

Camouflage Face Paint (CFP) is used on all exposed skin to provide passive camouflage protection in the visible and near-infrared regions of the electromagnetic spectrum, as well as protection against thermal imagers, which operate in the mid- and far-infrared regions of the spectrum. The current camouflage compact is a cosmetic-like container with an acrylic mirror and compartments containing four colors. The improved camouflage container will consist of two sticks of two colors each; one with a DEET additive and one without.



Ghillie Suit Accessory Kit (GSAK) Upgrade

MISSION

Offers the Soldier improved protection from flame and thermal threats, as well as counter-surveillance protection, increased multi-climate protection, and enhanced comfort.

The **Ghillie Suit Accessory Kit (GSAK) Upgrade** provides surveillance units and snipers with various camouflage multifunctional materials to construct, repair, and modify Ghillie Suits to meet unique mission and climatic requirements. The upgrade kit consists of 18 items, including universal netting, over whites, fire-resistant jute, nylon cord, sewing kit, camo-pack, zip ties, dye packs, seam grip, Cordura™, nylon webbing, Fas-tex fasteners, gun sleeve, hook and loop, and suspenders that are used to fabricate and maintain one Ghillie Suit. The GSAK upgrade affords the Soldier enhanced agility, multisystem operability, and anti-odor/anti-microbial properties.





Lightweight Performance Hood (LPH)

MISSION

Offers the Soldier improved protection from flame and thermal threats, as well as counter-surveillance protection, increased multi-climate protection, and enhanced comfort.

The **Lightweight Performance Hood (LPH)** is a fire-resistant, no-melt, no-drip head and face covering that provides the Soldier with protection from thermal threats and minimizes heat stress in hot-dry climates while providing limited heat retention in cool climates. It is a one-size-fits-all item featuring a ventilated mesh top to minimize heat stress beneath the Advanced Combat Helmet. The LPH is anti-microbial, anti-odor, and moisture wicking, and replaces the Combat Vehicle Crewman Hood and Anti-Flash Hood. It is being issued at a rate of two per Soldier.





Chemical Protective Clothing

MISSION

Protects the Soldier from chemical and biological (CB) contamination during battle and other mission operations.

The **Chemical Protective Undergarment (CPU)** is a two-piece “form-fitting” design worn under the combat vehicle crewman (CVC) or aviator uniform. When worn with a new duty uniform, the system will provide 12 hours of liquid and vapor protection from chemical agents. The CPU is snug-fitting and air permeable. The CPU is also worn with the Toxicological Agent Protective Ensemble by Department of the Army civilians who are engaged in routine surveillance, demilitarization, and destruction of chemical agents inside the United States. In addition to the shirt and drawers worn by CVC, Army civilians wear socks and gloves made from the same material to provide enhanced protection.

The **U.S. Army Firefighter's Integrated Suit-Combat (FIS-C)** protects military firefighters in accordance with National Fire Protection Association standards and provides CB protection during firefighting. The FIS-C consists of proximity coat, proximity trousers, gloves, helmet, standard firefighting boots, Nomex balaclava, self-contained breathing apparatus with chemical kit, Joint Service Lightweight Integrated Suit Technology (JSLIST) overgarment, CB gloves/liners, and carrying bag.

The **Suit, Contamination Avoidance, Liquid Protective (SCALP)** is an impermeable, lightweight, inexpensive disposable ensemble that provides supplemental protection when worn over standard chemical protective garments. SCALP consists of a jacket, trousers, and two footwear covers worn over the chemical protective overgarment and overboots. All components provide protection from liquid contamination for up to one hour.

The **Joint Service Lightweight Integrated Suit Technology (JSLIST)** ensemble is the first DoD managed CB protection overgarment. The JSLIST is a two-piece garment worn over the standard duty uniform with butyl rubber gloves, Black Vinyl Overshoes or Alternative Footwear System overboot and the M40 or M50 chemical protective mask. The JSLIST provides the Soldier with 24 hours of chemical protection in a contaminated environment after 45 days of wear and six launderings.

The **Joint Service Lightweight Integrated Suit Technology (JSLIST) Chemical Biological Coverall for combat vehicle crewmen (JC3)** provides CB protection for CVC. The JC3 is a one-piece coverall and is intended to provide petroleum, oil and lubricant, and fire resistance. The JC3 provides the Soldier with 16 hours of chemical protection in a contaminated environment after 30 days of wear. The JC3 integrates and is compatible with legacy and new CB clothing items and chemical masks.

The **Joint Protective Aircrew Ensemble (JPACE)** is a one-piece coverall that provides CB protection and fire resistance for aircrews. Army aviators wear the JPACE with a vapor protective neck dam to provide added protection in the head/neck region. The JPACE provides the Soldier with 16 hours of chemical protection in a contaminated environment after 30 days of wear. The JPACE integrates and is compatible with legacy and new CB clothing items and chemical masks.



JC3

Joint Protective Aircrew
Ensemble (JPACE)

Joint Service Lightweight
Integrated Suit Technology
(JSLIST)

Suit, Contamination Avoidance,
Liquid Protective (SCALP)

Chemical Protective
Undergarment (CPU)

U.S. Army Firefighter's
Integrated Suit-Combat (FIS-C)

Chemical Protective Clothing–Accessories

MISSION

Protects the Soldier from chemical and biological (CB) contamination during battle and other mission operations.

The **Chemical and Biological (CB) Protective Equipment Bag** is designed to consolidate and transport the CB protective gear. It is made of an abrasion-resistant nylon and incorporates a roll down quick-release buckle closure system. Modular Lightweight Load-carrying Equipment (MOLLE) style web loops have been stitched to the carrier to accept cargo tie-down straps and for attachment to the current and developmental load carrying equipment. The bag is resistant to petroleum, oils, and lubricants, as well as corrosion, fungus, insect repellent, and salt water.

The **Chemical Protective Helmet Cover** is a one-piece configuration made of butyl rubber-coated nylon cloth and gathered at the opening by elastic webbing enclosed in the hem. It provides any standard helmet with protection from CB contamination.

The **Chemical Protective Glove Set** includes the impermeable butyl rubber gloves with cotton knit liners, which protect the hands in a chemical-threat environment. The gloves are manufactured in right- and left-hand five-fingered configurations, and shaped to follow the natural curvature of the hand in a relaxed position, while the inner permeable cotton five-finger gloves fit either hand.

The **Green Vinyl Overboots/Black Vinyl Overboots (GVO/BVO)** are made of an impermeable molded vinyl plastisol and have a slip-resistant outsole design. Elastic loops are pulled over three metal fasteners to close the gusset expansion after donning. The GVO/BVO are worn over standard combat boots to provide chemical protection when needed and moisture protection during wet weather. The GVO/BVO provides 24 hours of protection against all known CB agents after a maximum wear of 60 days.

The **Alternative Footwear System (AFS)** is made from an impermeable compounded butyl rubber with improved traction and durability over the GVO/BVO. AFS boots have slip coat treatment on the inside for ease of donning and doffing. Fastening and usage are identical to the BVO. The AFS provides 24 hours of protection against all known CB agents after a maximum wear of 45 days.

The **Joint Block II Glove Upgrade (JB2GU) Non-Fire Resistant (nFR)** is made of impermeable articulated butyl rubber that provides increased tactility and dexterity over the current 25-mil butyl rubber glove. The JB2GU nFR provides 24 hours of protection after 30 days of wear.



Chemical Protective Glove Set



Alternative Footwear System (AFS)



Green Vinyl Overboot/Black Vinyl Overboot (GVO/BVO)



Chemical Protective Helmet Cover



Chemical and Biological (CB) Protective Equipment Bag

Toxicological Ensembles

MISSION

Protects the Soldier working in highly toxic, oxygen-deficient, or unknown environments that are immediately dangerous to life and health.

The **Improved Toxicological Agent Protective (ITAP) Suit** is a National Fire Protection Agency (NFPA) 1992 and 1994 Class-2 certified ensemble that will provide protection during peacetime and wartime short-term operations. ITAP will be deployed in “Immediately Dangerous to Life and Health” (IDLH) toxic chemical environments (up to 1 hour), for emergency lifesaving response, incident response, and routine chemical activity operations.

The **Self-Contained Toxic Environment Protective Outfit (STEPO)** is an NFPA 1991 and 1994 certified, totally encapsulating system that provides protection for personnel working in highly toxic, oxygen-deficient, or unknown environments that are IDLH. STEPO will replace the M3 Toxicological Agents Protective (TAP) ensemble for use in highly toxic areas (OSHA Level-A environments), while the ITAP ensemble is used for routine chemical activity operations in non-IDLH environments. STEPO provides four hours of percutaneous protection against chemical-biological agents, toxic industrial chemicals, unknown chemicals, rocket fuels, petroleum, oil, and lubricants.

STEPO and ITAP are both composed of five layers of Nomex and Teflon. The ITAP has an integral hood that is composed of three layers of Nomex and Teflon. STEPO and ITAP provide respiratory protection and cooling to the user and both are compatible with the personnel radios.





Improved Toxicological Agent Protective (ITAP) Suit

*Self-Contained Toxic Environment Protective
Outfit (STEPO)*

Modern Army Combatives Kit (MACK)

MISSION

Allows Soldiers to experience the physical and emotional demands of hand-to-hand fighting prior to engaging in combat.

The **Modern Army Combatives Kit (MACK)** enables units to conduct Level 3 and 4 combative training in accordance with the Modern Army Combatives Program. Because it can be used to conduct safe, realistic, combative training for the individual mission, the MACK enhances Soldier performance and confidence going into battle. Component materials for the MACK are foam, plastic, Plexiglas, leather, and polyester. It is black and comes in sizes small, medium, large, and extra large.





Modern Army Combatives
Kit (MACK) | PEO Soldier
Portfolio FY2011

T-10D Parachute

MISSION

Enables the safe delivery of the parachutist, weapon systems, and equipment to the drop zone in winds up to 13 knots.

The static line-deployed **T-10D Parachute** is used for combat mass-assault airborne operations and training. Depending upon air density and the jumper's total weight, the parachute's average rate of descent is from 22 to 24 feet per second; total suspended weight limitation is 360 pounds. The parachute is deployed using either a 15- or 20-foot static line, allowing the parachutist to be delivered by either C-130 or C-17 U.S. Air Force aircraft. The T-10D main parachute is a parabolic shape and has a nominal diameter of 35 feet, 30 suspension lines, and a mesh anti-inversion net.

The T-10D Parachute assembly consists of five components: pack tray, troop harness, deployment bag, riser, and canopy. The parachute has a combined service life of 16.5 years; service life is 12 years and shelf life is 4.5 years. The T-10D Parachute must be repacked every 120 days. The T-10D Parachute is made of nylon materials commonly used in the manufacturing of parachutes.

The **Modified Improved Reserve Parachute System (MIRPS)** includes a standard T-10 reserve parachute canopy assembly, integrated with a commercial deployment assistance device composed of a bridle line, pilot parachute, and spring. The pack tray includes a line bag for stowing suspension lines and an inner staging flap that holds the reserve parachute until sufficient tension is achieved through the bridle/pilot parachute assembly during deployment. The MIRPS pack tray is slightly larger than that of the T-10 reserve pack tray so it accommodates a larger pilot chute, spring, and bridle. The pack tray has a yellow stripe along the rip cord protector flap and is made of nylon textile materials commonly used to make parachute systems.





Military Free Fall (MFF) Parachute System

MISSION

Maximizes the success of Army free fall missions by enabling clandestine insertion.

The **Military Free Fall (MFF) Advanced Ram Air Parachute System (ARAPS)** provides a multi-mission, high-altitude parachute delivery system that allows personnel to exit at altitudes between 3,500 feet and 35,000 feet. The parachute, which replaces the current MC-4 parachute, supports a total jumper weight of 450 pounds. It also provides non-MFF personnel with a ram air parachute that is static-line deployed.

The ARAPS' three accessory systems are at different stages of the acquisition process:

The **Electronic Automatic Activation Device (EAAD)** is used with current and next-generation parachute systems, replacing the Automatic Ripcord Release. EAAD provides a simpler and more reliable method of activation in the event the parachutist is unable to deploy the parachute at the appropriate altitude. The EAAD activates and cuts the reserve parachute closing loops if the jumper is falling at 78 mph or faster at the minimum deployment altitude.

The **Navigation Aid (NAVAID)** will provide in-flight navigation and mission planning capability, allowing parachutists under canopy to locate themselves and the intended drop zone easily. The system utilizes a GPS that integrates with the Mission Planner of the Joint Precision Airdrop System (MP JPADS), ensuring more accurate canopy flight and drop zone landings.

The **Parachutist Oxygen Mask (POM)** will provide supplemental oxygen at 13,000 feet and higher and will be easier to use and maintain than the current MBU-12P mask. The POM will not interfere with the parachutist's vision or range of motion.



*Military Free Fall (MFF)
Advanced Ram Air Parachute
System (ARAPS)*



Navigation Aid (NAVAID)



Parachutist Oxygen Mask (POM)



*Electronic Automatic Activation
Device (EAAD)*

Maneuverable Canopy (MC) Personnel Parachute Systems

MISSION

Enables the parachuting Soldier to steer toward a specific impact point in the drop zone.

The **MC-6 Maneuverable Canopy Personnel Parachute System** offers the airborne Soldier a new tactical, static line-deployed, steerable personnel parachute system, replacing the legacy MC-1 series parachute assembly, associated harness, and reserve. The MC-6 has a safer rate of descent, lower opening shock, reduced canopy damage, better turn ratio, and a better glide ratio than the MC1-1C. The system was designed specifically to operate at higher altitudes with heavier weights. These improvements result in better maneuverability, greater canopy control, and reduced jumper injury. This program is a combined U.S. Army and Special Operations Command project.

The MC-6 can be used throughout the full spectrum of operational and environmental conditions. The MC-6 integrates the maneuverable main canopy (SF-10A) with the T-11 harness and T-11 reserve parachute (T-11R).

The MC-6 main and reserve canopies are made of 1.1 ounces low-porosity ripstop nylon. Block construction facilitates manufacturing and repair. The container bag is made of Cordura™, an abrasion and water-resistant fabric. The harness is made of Type 7 webbing.

The main canopy assembly weight with T-11 harness is 26 pounds. The T-11R reserve assembly weight is 15 pounds. Main canopy is 32 feet in diameter; the reserve canopy is 24 feet in diameter.

The **MC1-1C** is utilized by small teams during airborne operations and training. The parachute has a parabolic shape with an H-TC shape configuration in the rear with 60 square feet of canopy removed. It has a nominal diameter of 35 feet and weighs 28 pounds.



Non-Maneuverable Canopy (T-11) Personnel Parachute System

MISSION

Provides the Soldier with a parachute capable of handling heavier jump weights with a more stable, slower rate of descent.

The **Non-Maneuverable Canopy (T-11) Personnel Parachute System** is the next-generation personnel parachute system. The T-11 provides the airborne Soldier with the first wholesale modernization of the tactical parachute system since the 1950s. The T-11 includes a completely redesigned main and reserve parachute and an integrated harness assembly that is suitable for the 5th percentile to the 95th percentile Soldier.

The main canopy is a modified version of a cross/cruciform platform. The canopy has an increased inflated diameter of 14 percent and a 28 percent increase in surface area, when compared with the T-10D assembly. The T-11 main canopy utilizes a unique deployment sequence to reduce the opening shock and canopy oscillation. The T-11 is designed to have an average rate of descent of 19 feet per second for the 95th percentile Soldier, compared with 24 feet per second with the T-10D. This reduction will result in significantly lower landing injury rates for jumpers.

The reserve canopy is a proven derivative of the British Low Level Parachute (LLP) aero-conical design that includes apex scoop pockets at the top of the reserve canopy and skirt assist lines at the system's hem to promote fast opening of the reserve system during low-speed malfunctions. Unlike the current reserve parachute system, the T-11R reserve uses an omni-directional, center-pull deployment system. The T-11 harness is designed to displace opening shock forces of the reserve parachute equally along the long axis of the jumper's body.



Parachutist Equipment

MISSION

Secures individual mission-essential equipment to the parachutist while in the aircraft, during exit, and during main parachute deployment and descent.

The **Harness, Single-Point Release (HSPR)**, used to secure equipment to the parachutist, is made of nylon webbing with friction adapters, two adjustable leg straps, two D-ring attaching straps, and a lowering line. The harness is secured around the equipment load and allows for a simultaneous release of the load and leg straps from the parachutist and parachute harness.

The **Parachutist Drop Bag (PDB)**, a commercial, load-carriage drop bag with a single point release, is used with a 7-foot lowering line when conducting military free-fall operations, or a 15-foot lowering line when conducting static line parachuting operations. It has exterior pockets for easy access to maps and water, and can be worn front- or rear-mounted. The retention strap is made of nylon webbing, has an attachment eyelet in the center, and has hook and pile tape on each end.

The **M-1950 Weapons Case**, a padded case, is made of cotton duck or nylon, and is designed to carry individual or crew served weapons. It protects both the jumper and the weapon from injury/damage during airborne operations. The M-1950 Weapons Case must be rigged with a lowering line when the case and weapon weight is more than 35 pounds.

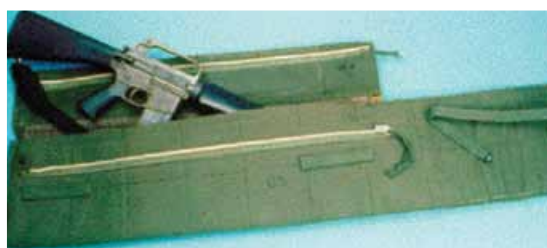




Parachutist Drop Bag (PDB)



Harness, Single-Point Release (HSPR)



M-1950 Weapons Case

Soldier Clothing and Individual Equipment Future Initiatives

MAN PORTABLE DESALINATION SYSTEM

Program Executive Office (PEO) Soldier is coordinating with the Natick Soldier Research Development and Engineering Center to develop the Man Portable Desalination System. A block initiative under the On-The-Move Hydration (OTMH) System, the system is a Small Business Innovative Research project (SBIR) A09-116 designed to provide the capability for individual Soldiers to convert salt water to fresh water. The requirements for the OTMH system are a total dry system weight (hydration system, water purification system, desalination system) of less than 2 pounds, a system flow rate no less than 200 ml/min, water quality in accordance to TB MED 577, and purified water production of no less than 45 liters before component replacement. The Man Portable Desalination System will also support the Individual Water Treatment Device (IWTD) requirement for expeditious and convenient hydration for Soldiers at will during the performance of mission-critical activities. The system will sustain the dismounted Soldier during continuous operations for at least 72 hours without supply replenishment. With Soldiers increasingly engaged in a spectrum of environments worldwide, the Man Portable Desalination System answers the critical need for an individual hydration system that supports the Soldier and lightens his equipment load.

WASHABLE WOOL PRODUCTS

PEO Soldier is coordinating with the Natick Soldier Research Development and Engineering Center to develop a washable wool process. Flame resistant wool fabrics show promise for combat clothing applications but historically have been underutilized on the battlefield due to sustainment issues—many wool-based clothing articles shrink excessively when machine washed and dried, making them impractical for the battlefield. New innovative protective fabrics made from wool could be introduced, but there is no domestic source for washable wool treatments for fibers and fabrics. This new process will be 100 percent Berry Amendment-compliant and will develop a textile treatment that reduces the shrinkage of wool, when commercially laundered, without detrimentally affecting other wool fiber properties such as strength and flame resistance. A shrink-resistant treatment would make wool a viable candidate for protective combat clothing and could be used in virtually any application from head to toe including jackets, trousers, underwear, headwear, hand wear, and socks. Unlike domestic synthetic fibers, wool is inherently flame resistant, moisture wicking, thermal resistant, anti-microbial, and durable. Wool products answer the critical need for a fabric that supports the Soldier's comfort and protection in all environments and lightens his equipment load.

INDIVIDUAL DESALINATION SYSTEM (IDS)

Individual Desalination System (IDS): Block 2 of the Individual Water Treatment Device (IWTD) will allow the Soldier to desalinate salt water hands free and on the move. The IDS will be compatible with current and future personal hydration systems, the Block 1 IWTD, and Soldier load-carriage equipment. The technology and configuration of the IDS has not been determined, although it must have a volume of <100 cubic inches and weight of <2.5 pounds while providing fresh water on demand (≥ 200 mL/min) from salt water without the use of sugar substances by removing 98 percent of the salt in the incoming water.

TOPICALLY APPLIED FACE-GEL

Product Manager Soldier Clothing and Individual Equipment in conjunction with Natick Soldier Research Development and Engineering Center, is developing a topically applied gel-like material that can be applied to exposed skin to prevent flame and thermal injuries. This Small Business Innovative Research project is completing the end of its first year, and selected manufacturers will move forward to Phase II in FY11.



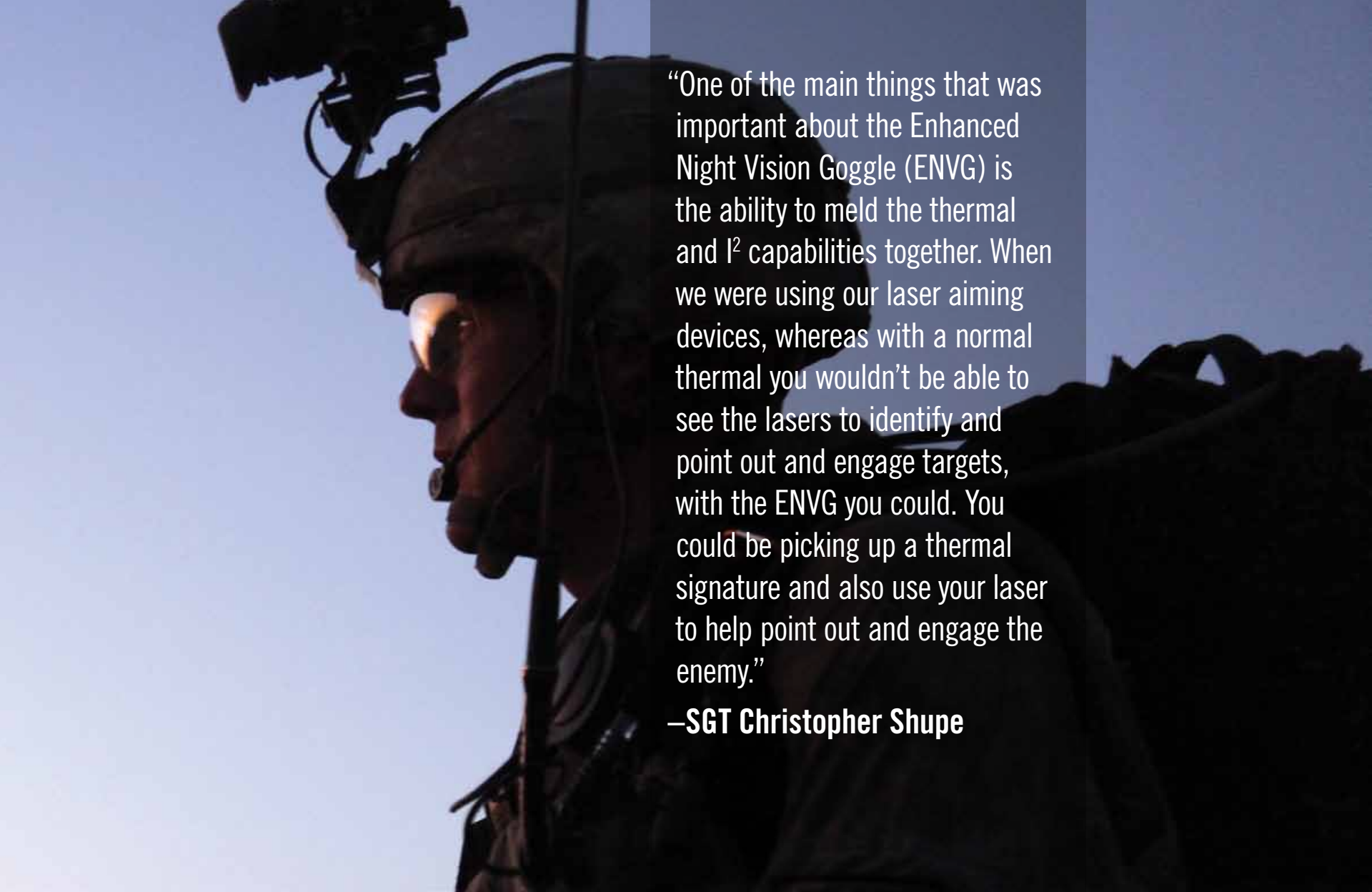
Project Manager Soldier Sensors and Lasers (PM SSL)

Product Manager
Soldier Maneuver Sensors

Product Manager
Soldier Precision Targeting Devices

PM SSL provides Soldiers with improved lethality, mobility, and survivability in all weather and visibility conditions. Soldier-borne sensors and lasers enhance the Soldier's ability to see in all battlefield and lighting conditions, to acquire objects of military significance before the Soldier is detected, and to target threat objects accurately for engagement by Soldiers or guided munitions. These systems provide critical, on-the-ground direct support to U.S. forces.



A close-up, profile view of a soldier wearing a helmet equipped with a night vision device. The soldier's face is partially visible through the helmet's visor, which appears to be glowing with a warm, orange light. The background is a clear, light blue sky. The soldier's helmet has various attachments, including a night vision device and a microphone.

“One of the main things that was important about the Enhanced Night Vision Goggle (ENVG) is the ability to meld the thermal and I² capabilities together. When we were using our laser aiming devices, whereas with a normal thermal you wouldn’t be able to see the lasers to identify and point out and engage targets, with the ENVG you could. You could be picking up a thermal signature and also use your laser to help point out and engage the enemy.”

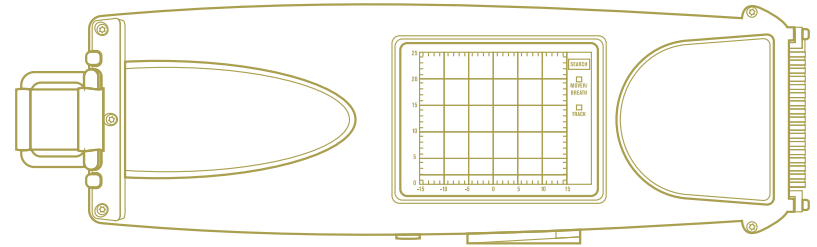
—SGT Christopher Shupe

PRODUCT MANAGER SOLDIER MANEUVER SENSORS (PM SMS)

PM SMS is responsible for developing and equipping the Soldier with sensors and lasers to help dominate the battlefield through improved lethality, mobility, and survivability in all weather and visibility conditions.



The **Enhanced Night Vision Goggle (ENVG)** combines image intensification and passive thermal imaging in one system for better situational awareness and increased lethality at night or in degraded battlefield environments.



The **AN/PPS-26 Sense Through The Wall (STTW)** system will allow Soldiers to detect, locate, and “sense” personnel behind walls, doors, and other visible obstructions from a standoff distance.

Thermal Weapon Sight (TWS), AN/PAS-13

MISSION

Enables the Soldier to detect and engage targets, day or night, in all weather and visibility-obscured conditions.

The **AN/PAS-13 Thermal Weapon Sight (TWS)** gives Soldiers with individual and crew served weapons the capability to see deep into the battlefield, increase surveillance and target acquisition range, and penetrate obscurants, day or night. The TWS systems use uncooled, forward-looking infrared technology and provide a standard video output for training, image transfer, or remote viewing. Thermal Weapon Sights are lightweight systems that are mountable onto a weapon rail and operate to the maximum effective range of the weapon.

The TWS family comprises three variants, each of which is a silent, lightweight, compact, durable, battery-powered thermal sight. They are:

AN/PAS-13(V)1 Light Weapon Thermal Sight (LWTS) for the M16 and M4 series rifles and carbines, as well as the M136 Light Anti-Armor Weapon.

AN/PAS-13(V)2 Medium Weapon Thermal Sight (MWTS) for the M249 Squad Automatic Weapon and M240B series medium machine guns.

AN/PAS-13(V)3 Heavy Weapon Thermal Sight (HWTS) for the squad leader's weapon M16 and M4 series rifles and carbines, M24 and M107 sniper rifles, and M2 HB and MK19 machine guns.

Weight: HWTS: 3.9 pounds; MWTS: 2.9 pounds; LWTS: 1.95 pounds

Target recognition range: HWTS: 2,200 meters; MWTS: 1,100 meters; LWTS: 550 meters

Operational time: HWTS/MWTS: 6.5 hours (six lithium AAs); LWTS: 5 hours (four lithium AAs)

Magnification: HWTS: 10x/3.3x (narrow/wide); MWTS: 5x/1.66x (narrow/wide); LWTS: 1.55x



AN/PAS-13(V)1 Light Weapon Thermal Sight (LWTS)



AN/PAS-13(V)2 Medium Weapon Thermal Sight (MWTS)



AN/PAS-13(V)3 Heavy Weapon Thermal Sight (HWTS)



Thermal Weapon Sight
(TWS), AN/PAS-13 |
PEO Soldier Portfolio
FY2011

Enhanced Night Vision Goggle (ENVG), AN/PSQ-20

MISSION

Provides the Soldier with enhanced situational awareness day or night in all weather and degraded battlefield conditions.

The **AN/PSQ-20 Enhanced Night Vision Goggle (ENVG)** provides increased capability by incorporating image intensification and long-wave infrared sensors into a single, helmet-mounted passive device. The ENVG combines the visual detail in low light conditions that is provided by image intensification with the thermal sensor's ability to see through fog, dust, and foliage that obscure vision. This thermal capability makes the ENVG, unlike earlier night vision devices, useful during the day as well as at night. The ENVG allows Soldiers to rapidly detect and engage targets because it permits use of existing rifle-mounted aiming lights.

Several engineering enhancements to the ENVG improve its fit and function. For example, putting the battery pack on the rear of the helmet provides better balance and increases comfort as well as stability. The system is also designed to work with existing ballistic eye protection. In addition, the system is now more compact and easier to stow when not in use, which enhances the Soldier's mobility.

Weight (total system): 2 pounds, including four AA batteries

Man-sized target (standing and moving) recognition:

80 percent probability at 150 meters

50 percent probability at 300 meters

Continuous operation: 7.5 hours, continuous fusion, plus an additional 7.5 hours of image intensification only with no battery change





Monocular Night Vision Device (MNVD), AN/PVS-14

MISSION

Provides Soldiers with the capability to engage and execute close combat, combat support, and combat service support operations in very low-light (starlight) conditions.

The **AN/PVS-14 Monocular Night Vision Device (MNVD)** is a head- or helmet-mounted passive device that amplifies ambient light and very near infrared energy to enable night operations. The system is designed for use in conjunction with rifle-mounted aiming lights.

The AN/PVS-14 incorporates an infrared (IR) illuminator with a momentary and continuous-on switching function. IR operation and low-battery indicators are displayed within the Soldier's field of view. The AN/PVS-14 has a lightweight, fully adjustable military head strap that allows for comfortable long-term use. A wide range of optional accessories includes high-magnification lenses and a helmet-mounting bracket. The AN/PVS-14 can be mounted to the M16 Rifle/M4 Carbine receiver rail.

Weight: 1.25 pounds with battery

Magnification: 1x

Range: 150 meters

Operational time: ≥ 15 hours

Power: One AA battery





Aviator's Night Vision Imaging System (ANVIS), AN/AVS-6

MISSION

Enables aviators to conduct flight operations under very low (starlight) ambient light conditions.

The **AN/AVS-6 Aviator's Night Vision Imaging System (ANVIS)** is a third-generation, helmet-mounted, direct-view, image-intensification device that enables aviators to operate more effectively and safely during low-light and degraded battlefield conditions.

The low-light sensitivity represents a 35 to 40 percent improvement over the earliest ANVIS. Additionally, the gated power supply enables operation at significantly higher light levels than any of the previous designs. All ANVIS systems are capable of operating for 24 hours on a pair of AA batteries.

Weight (maximum): 1.3 pounds with batteries

Magnification: 1x

Operational time: 24 hours

Power: Low-profile battery pack or from aircraft-supplied power





Aviator's Night Vision
Imaging System (ANVIS),
AN/AVS-6 | PEO Soldier
Portfolio FY2011

Sniper Night Sight (SNS), AN/PVS-10

MISSION

Enables acquisition and engagement of targets using the M24 Sniper Weapon System or the M110 Semi-Automatic Sniper System (SASS).

The **AN/PVS-10 Sniper Night Sight (SNS)** is a lightweight, weapon-mounted, self-contained image-intensified passive device designed primarily for use by snipers for day and night operations. It has a range of 600 meters at night and 800 meters during daylight. A day/night lever enables the user to alternate between day and night modes of operation. The SNS employs a variable-gain image intensifier that can be adjusted by the user depending on the ambient light levels. It includes a black-line reticle for day use and can be illuminated for night use when required.

An eyepiece diopter adjustment permits use of the SNS without corrective glasses. A rail mounting interface is integrated into the base of the sight to be quickly mounted to or dismounted from the weapon.

Weight: 4.9 pounds

Magnification: 8.5x

Range: Target recognition (night): 600 meters; target recognition (day): 800 meters

Operational time: 24 hours (with one battery set change)

Power: Two AA batteries





Sniper Night Sight (SNS),
AN/PVS-10 | PEO Soldier
Portfolio FY2011

Clip-on Sniper Night Sight (Clip-on SNS), AN/PVS-29

MISSION

Enables the sniper to acquire and engage targets using the M110 Semi-Automatic Sniper System (SASS) during periods of limited visibility and at low-light levels.

The **AN/PVS-29 Clip-on Sniper Night Sight (Clip-on SNS)** is a lightweight, in-line weapon-mounted sight used in conjunction with the day optic sight on the M110 SASS. It employs a variable gain image tube that can be adjusted by the sniper depending on ambient light levels. When used in conjunction with the M110 day optical sight, it provides for personnel-sized target recognition at quarter moon illumination in clear air to a range of 600 meters. The Clip-on SNS has an integrated rail adapter that interfaces directly to the MIL-STD-1913 rail for quick and easy mounting to or dismounting from the weapon.

The Clip-on SNS allows a sniper to maintain the current level of accuracy with the M110 and to deliver precise fire within 1 minute of angle. Use of the Clip-on SNS does not affect the zero of the day optical sight and allows the M110 SASS to maintain bore sight throughout the focus range of the Clip-on SNS and the M110 day optical sight.

Weight: < 3.5 pounds

Man-sized target recognition: ≤ 600 meters

Focus range: 25 meters to infinity

Power: Two AA batteries





Small Tactical Optical Rifle Mounted (STORM) Micro-Laser Rangefinder (MLRF), AN/PSQ-23

MISSION

Enables determination of distant target and terrain locations with laser rangefinding and digital direction finding.

The **AN/PSQ-23 Small Tactical Optical Rifle Mounted (STORM) Micro-Laser Rangefinder (MLRF)** is a lightweight, multifunctional laser system designed to operate on individual and crew served weapons and the Stryker Remote Weapons Station. It combines the functionality of a laser rangefinder, the AN/PEQ-2A Infrared Aiming Laser and Illuminator, the Multiple Integrated Laser Engagement System, a digital compass, and a visible pointer into a single system. Combined with a Precision Lightweight GPS Receiver or a Defense Advanced GPS Receiver, the system can compute and display highly accurate target locations.

Weight: 1.2 pounds with batteries

Range:

Rangefinder: 25–9000 meters

IR illuminator: 600 meters low power/2,000 meters high power

IR pointer: 600 meters low power/2,000 meters high power

Visible pointer: 600 meters low power/1,000 meters high power

Operational time: 1,000 ranging events

Power: Two each DL 123 lithium batteries





Small Tactical Optical Rifle
Mounted (STORM) Micro-Laser
Rangefinder (MLRF), AN/PSQ-23 I
PEO Soldier Portfolio FY2011

Multifunction Aiming Light (MFAL)

MISSION

Enables laser pointing and precision aiming in visible or infrared spectrums.

The **Multifunction Aiming Light (MFAL)** family includes the **AN/PEQ-15 Advanced Target Pointer Illuminator Aiming Light (ATPIAL)** and the **AN/PEQ-15A Dual Beam Aiming Laser–Advanced² (DBAL-A²)**.

The AN/PEQ-15 and AN/PEQ-15A class 3B MFAL devices replace the AN/PAQ-4C. The infrared (IR) and visible aiming lasers are co-aligned. The visible laser can be used to bore-sight the device to a weapon without the need of night vision goggles. The IR lasers emit a highly collimated beam of IR light for precise weapon aiming, as well as a separate, IR-illuminating laser with adjustable focus. A visible red-dot aiming laser can also be selected to provide precise aiming of a weapon during daylight or night operations. AN/PEQ-15 and AN/PEQ-15A IR lasers can be used as handheld illuminator pointers, or can be weapon-mounted with included hardware.

AN/PEQ-15

Weight: 7.5 ounces

Effective range:

IR lasers: 600 meters low power/2,000 meters high power

Visible laser: 25 meters in daylight, but not in direct sunlight

Operational time: 6 hours minimum with laser(s) on Dual High

Power: One DL 123, 3-volt battery

AN/PEQ-15A

Weight: 8 ounces

Effective range:

IR lasers: 600 meters low power/2,000 meters high power

Visible laser: 25 meters in daylight, but not in direct sunlight

Operational time: 5 hours minimum with laser(s) on Dual High

Power: One DL 123, 3-volt battery



AN/PEQ-15 ATPIAL



AN/PEQ-15A DBAL-A2

Integrated Laser White Light Pointer (ILWLP), AN/PEQ-14

MISSION

Enables Soldiers to acquire and engage targets in conditions of limited visibility using unaided vision or night vision goggles.

The **AN/PEQ-14 Integrated Laser White Light Pointer (ILWLP)** is a small, lightweight device that can be handheld or mounted on the M9 pistol with a MIL-STD-1913 rail adapter and combines the functions of a white light flashlight with adjustable focus, visible aiming laser, infrared (IR) aiming laser, and IR illuminator into one system. The ILWLP is used to engage targets with the M9 Pistol on the battlefield and in close-quarters combat engagements and is powered by two DL 123 standard commercial batteries. The ILWLP is fielded to military police units.

Weight: < 6 ounces

Range:

IR aim/illum: >100 meters

Visual aim: 25 meters during daylight but not direct sunlight

White light: 20 meters facial recognition

Operational time: Supports a 72-hour mission profile, which consists of 54 minutes of total use spread over the four functions

Power: Two DL 123, 3 volt batteries





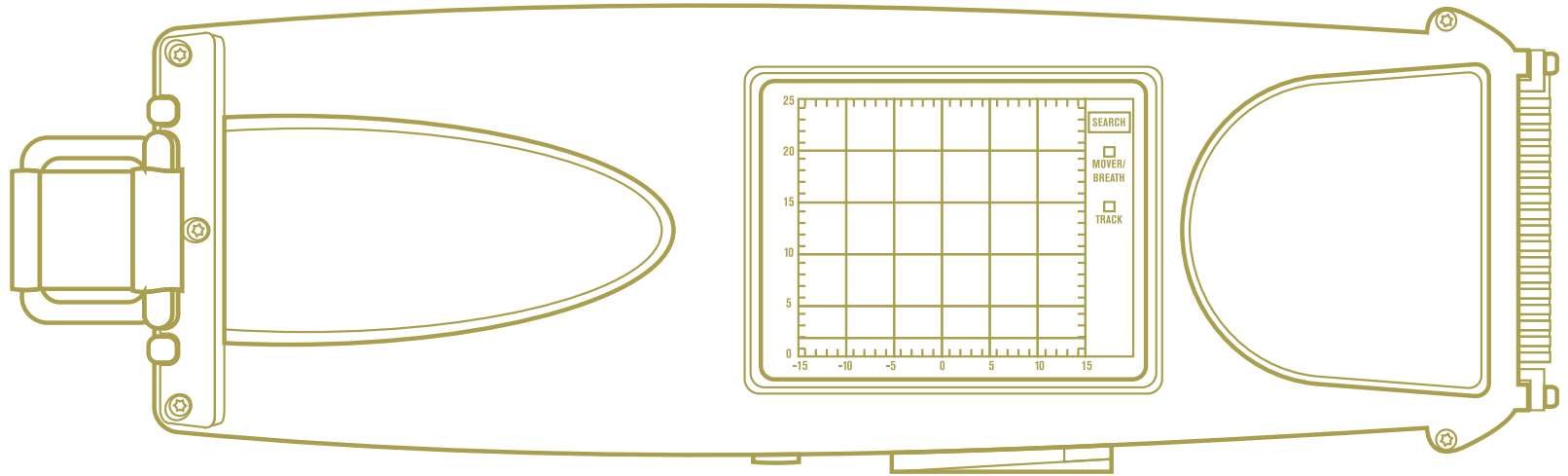
Integrated Laser White Light
Pointer (ILWLP), AN/PEQ-14 |
PEO Soldier Portfolio FY2011

Sense Through The Wall (STTW), AN/PPS-26

MISSION

Allows the Soldier to detect, locate, and “sense” personnel behind walls, doors, and other visible obstructions from a standoff distance.

The **AN/PPS-26 Sense Through The Wall (STTW)** system will enable Soldiers and small units to dominate conventional and asymmetrical threats in close combat and close, complex terrain through improved situational awareness (SA), command and control (C2), lethality, mobility, survivability, and sustainability. The SA and C2 will enhance troop-leading procedures, tactical problem solving, and operational momentum. The STTW system will enable small units to influence a larger geographic area with greater speed and increased lethality while maximizing force protection and minimizing noncombatant casualties. The STTW devices will be used through exterior and interior walls (up to 8-inch thick adobe), floors, or ceilings to accurately detect targets both moving and stationary while being operated in either a standoff or local capacity. The handheld STTW system will provide a real-time SA capability to the individual Soldier in built-up areas. It is powered by AA batteries.



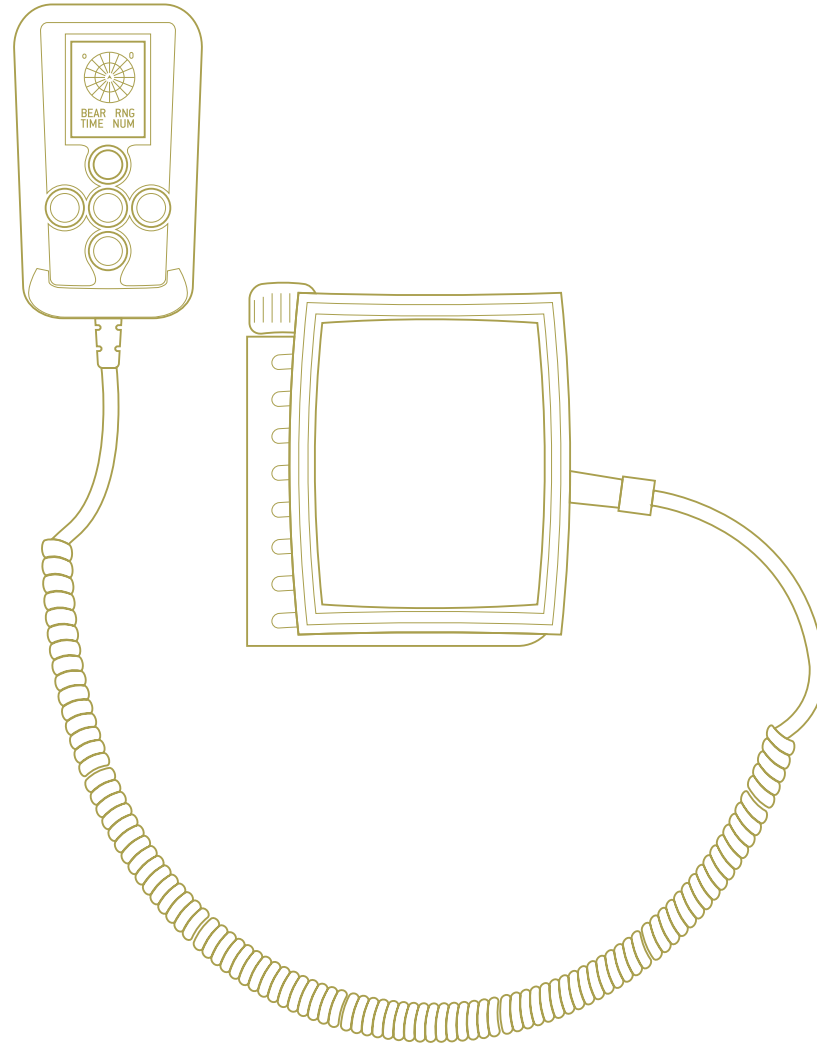
Individual Gunshot Detector (IGD)

MISSION

Enables the Soldier to accurately determine the direction and range of gunfire in order to locate the threat.

Individual Gunshot Detector (IGD) technologies are self-contained passive acoustic systems with the capability to detect and localize the source of small arms fire. The system is tuned to detect shockwave and muzzle blast signatures while screening out other acoustic events. IGD technologies use information from both the shockwave of a bullet and the muzzle blast from the corresponding rifle fire as a single sensor to alert the user of the threat. These technologies provide range and alert data out to 400 meters within 10 percent range error and with a bearing error less than 7.5 degrees.

The single sensor system reports this solution directly to the individual Soldier on a visual display and audio alert within a second of a muzzle blast. The technology is able to detect and provide alert data for 5.56mm and 7.62mm ammunition. The system is powered by two DL 123 batteries.



Weapons Mounted Light (WML) and Crew Served Weapons Light (CSWL)

MISSION

Provides a small, lightweight, weapon-mounted or hand-held white light capability for use in a variety of combat situations.

The **Weapons Mounted Light (WML)**, the **Crew Served Weapons Light (CSWL)**, the Handheld Tactical Light (HHTL), and the Hands-Free Helmet Mounted Light (HFHL) make up the Family of Flashlights (FoF). The HHTL and the HFHL are managed by Product Manager Soldier Clothing and Individual Equipment. The WML is a small (7 inches threshold, 6 inches objective), lightweight (10 ounces or less with batteries) white light that can be weapon-mounted or handheld. The WML is employed on small arms weapons including the M16A4 modular weapons, M4/M4A1, M249 Squad Automatic Weapon (Threshold), and M240B/L Medium Machine Gun (Objective). The light is able to mount on the weapons' MIL-STD-1913 rail and does not interfere with day/night optics, aiming lights, or other weapon accessories. When weapon-mounted, the WML will provide the Soldier the capability to illuminate a 20 x 30 x 8 foot darkened room or enclosure and identify targets accurately, with facial recognition at a range of 20 meters (Threshold) or 25 meters (Objective). The WML has dual activation controls, i.e., an on/off switch, located on the device housing and a wired remote control switch. The system operates on one or two DL 123 batteries. The WML includes an infrared capability.

The **Crew Served Weapons Light (CSWL)** system is compact and lightweight, provides both overt (white light) and covert (infrared) illumination and can be mounted to the M2 .50 Caliber Machine Gun and the MK19 Grenade Machine Gun or used in the handheld mode. The CSWL increases situational awareness by enabling the Soldier to observe deeper into the area of operation; increases the probability to detect, identify, deter or assist in engagement of hostile forces or identify friendly forces or non-combatants at greater ranges; and provides increased command and control at traffic control or check points. The CSWL operates with an on/off switch on the device housing or with a wired remote cable switch. Each system is powered by internal rechargeable batteries, the BA-5590 Battery Adapter, or the standard NATO adaptor to allow military vehicle power to extend the operational run time of the unit.





LA-8/P Aircrew Laser Pointer (ALP)

MISSION

Provides a small, finger-mounted infrared laser for identification, signaling, and fire direction during night operations.

The **LA-8/P Aircrew Laser Pointer (ALP)** is a finger-mounted laser that has the capability to direct fires, identify friend and foe, and signal adjacent formations during night operations. It is mounted on a fire-resistant fabric designed to attach to the aircrew member's glove. Because it is hand worn, it does not interfere with aircraft operation. The master arming switch allows a high-power (Class IIIb) or low-power (Class I) infrared laser operation. A momentary fire button allows easy activation with the thumb. An indicator LED is lit when the momentary fire button is activated. The ALP incorporates a laser diode that projects a pinpoint beam that is brighter and more defined than other lasers.

Weight: <5 ounces

Maximum range: 3 kilometers

Power: Two 1.5 V AA lithium batteries





Green Laser Interdiction System (GLIS)

MISSION

Provides a non-lethal means for Soldiers to hail or warn potential hostile forces and/or civilians that they are approaching military operations.

The **Green Laser Interdiction System (GLIS)** is a rifle-mounted laser that allows the Soldier to interdict hostile actions through non-lethal effects. It is used to divert, disrupt, or delay potential threats before they can engage friendly forces. It is also an effective, non-lethal means to warn civilians that they are approaching a zone of military operations.

Weight: <14 ounces

Range: 300–1000m

Operational time: 2–6 hours

Power: DL 123 or AA batteries



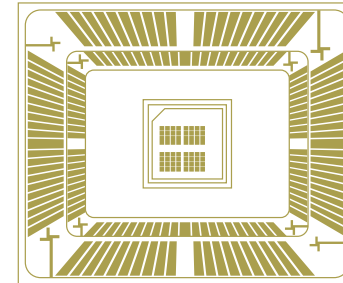
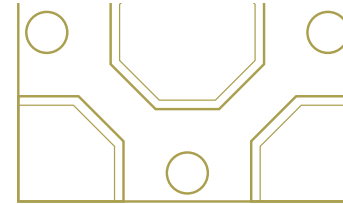


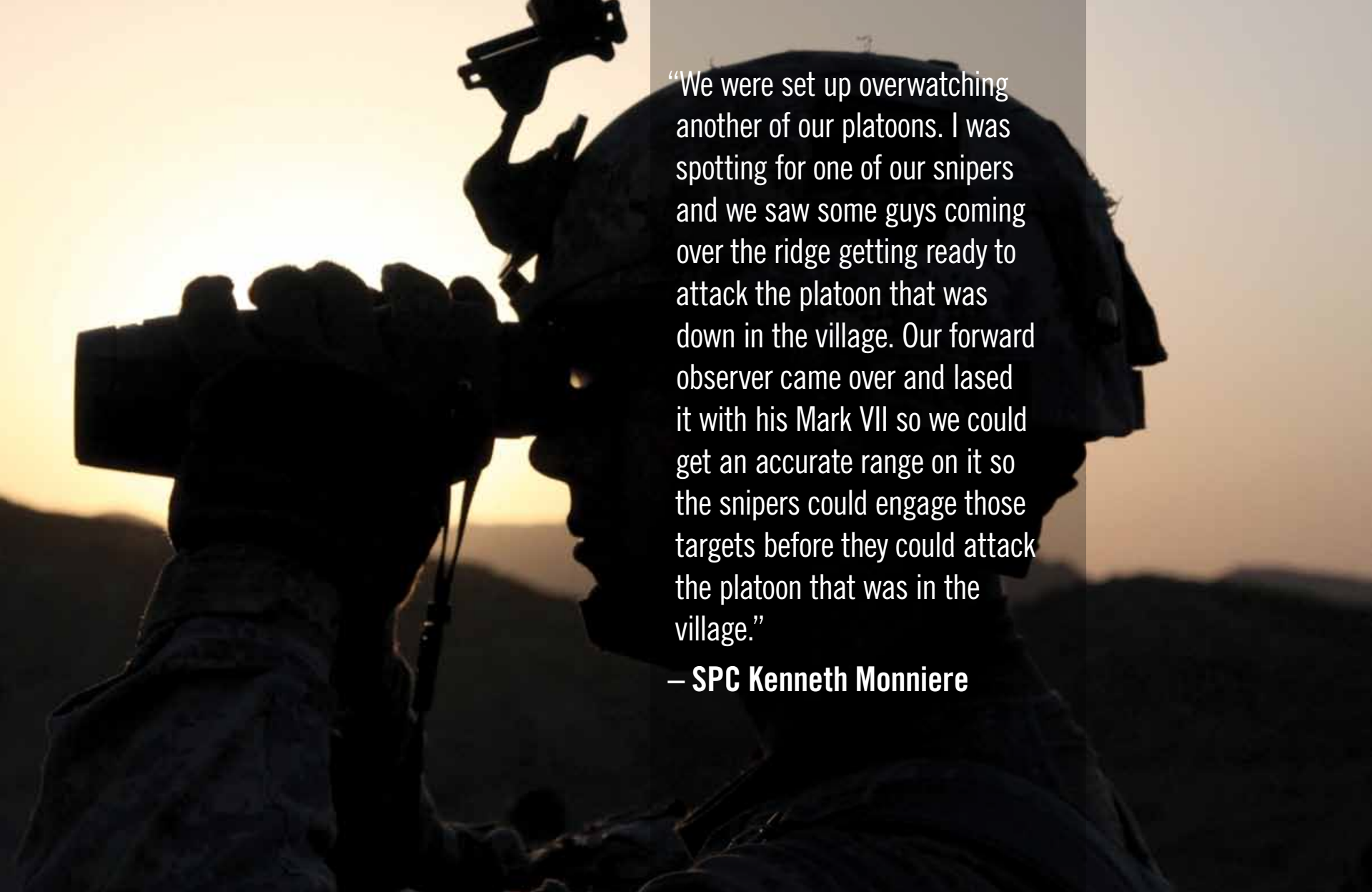
Soldier Maneuver Sensors Future Initiatives

SOLDIER SENSOR COMPONENT AND IMAGE PROCESSING

The Army is focusing on developing the next generation of digital image-intensified vision components, which will offer increased resolution and dynamic range and will require less network bandwidth and component power. The resulting low-light-level cameras and micro-display components will also offer automatic focus (hands-free) optics.

This initiative, which is planned for completion in FY11, will result in reduced Soldier workload and reaction time in urban operations, and increased Soldier situational awareness and maneuverability with Soldier-to-Soldier image-sharing capability.



A silhouette of a soldier wearing a helmet and using a night vision device, set against a bright sunset or sunrise background. The soldier's hands are visible, holding the device. The scene is dark, with the light from the sun creating a strong backlight effect.

“We were set up overwatching another of our platoons. I was spotting for one of our snipers and we saw some guys coming over the ridge getting ready to attack the platoon that was down in the village. Our forward observer came over and lased it with his Mark VII so we could get an accurate range on it so the snipers could engage those targets before they could attack the platoon that was in the village.”

— **SPC Kenneth Monniere**

PRODUCT MANAGER SOLDIER PRECISION TARGETING DEVICES (PM SPTD)

PM SPTD is the product office within Project Manager Soldier Sensors and Lasers that develops, produces, fields, and sustains man-portable precision targeting systems (locators, designators, and entry devices) for the Joint Force Scout, Forward Observer, and Joint Terminal Attack Controller for use across the full spectrum of operations.



The **AN/PED-1 Lightweight Laser Designator Rangefinder (LLDR)** enables fire support teams and forward observers to accurately locate targets, digitally transmit target location data to the tactical network, and laser-designate high-priority targets for engagement with precision munitions. Beginning in FY11, a high accuracy version of LLDR will enter production. It will add the capability to support GPS-guided munitions such as Excalibur, Guided Multiple Launch Rocket System (GMLRS), and Joint Direct Attack Munitions (JDAM).



The **Laser Target Locators Mark VII** and **Vector 21**, as well as the **Mark VIII** and **TRIGR**, provide fire support teams and forward observers with daylight and limited night capability to observe and accurately locate targets for transmission of target data to the fire-support and maneuver command, control, communications, computers, and intelligence system (C4I). Each incorporates an eye-safe laser rangefinder and a digital magnetic compass to determine range, azimuth, and vertical angle from the observer to targets of interest.

Laser Target Locator (LTL)

MISSION

Provides daylight and limited night capabilities to accurately locate targets and transmit target data.

The **Laser Target Locators (LTL)** are commercial off-the-shelf, handheld or tripod-mounted, lightweight laser target locators designed to deliver target data to the fire support and maneuver command, control, communications, and intelligence system (C4I).

The **Vector 21** is a Binocular Laser Rangefinder (BLRF) with an embedded digital compass. The Vector 21 can be connected to the Precision Lightweight GPS Receiver (PLGR) or a Defense Advanced GPS Receiver (DAGR) to provide target grid coordinates. When used in conjunction with an AN/PVS-14 Monocular Night Vision Device, the Vector 21 provides a limited system night capability. The Vector 21 is powered by one CR-246 lithium battery.

The **Mark VII** integrates a monocular direct view optic, an image intensifier, a laser rangefinder and a digital compass into a day/night target location device. The Mark VII connects to the PLGR or the DAGR to provide grid coordinates to far targets. The MARK VII provides a limited night capability.

The **Mark VIIE** is an improved MK VII, which adds to all the Mark VII's capabilities a more powerful 8x day optic, an un-cooled thermal sight for increased night performance, and an embedded GPS receiver for greater accuracy. It operates on eight DL123A lithium batteries.

The **TRIGR** incorporates a 7X direct view optic, an improved un-cooled thermal sight for increased sight range, a laser rangefinder, digital compass and GPS that allows the system to determine target location.

Weight (handheld):

Vector 21: 3.8 pounds (not including the cable and PLGR or DAGR)

Mark VII E: 5.5 pounds

TRIGR: 5.5 pounds

Weight (total system):

Vector 21: (daylight), 5.9 pounds; (night), 9.2 pounds

MK VII: 6 pounds (not including the cable and PLGR or DAGR);



Vector 21



TRIGR



Mark VII



Mark VIIE

Lightweight Laser Designator Rangefinder (LLDR), AN/PED-1

MISSION

Provides Soldiers with a laser designation system that allows them to pinpoint high-priority targets with precision munitions.

The **AN/PED-1 Lightweight Laser Designator Rangefinder (LLDR)** is a man-portable, modular target locator and laser designation system. The primary components are the Target Locator Module (TLM) and the Laser Designator Module (LDM).

The TLM incorporates a thermal imager, day camera, electronic display, eye-safe laser rangefinder, digital magnetic compass, Selective Availability/Anti-Spoofing Module Global Positioning System (SAASM GPS), and digital export capability. LLDR 1 operates on one BA-5699 battery, but it can also use a Single Channel Ground and Airborne Radio System (SINCGARS) battery when laser designation is not required. The LLDR 2 uses a new compact laser designator which allows the LLDR 2 to operate on one common SINCGARS battery (BA-5390 or BA-5590).

The LLDR 2 TLM has an integral capability which enables the operator to see the laser designator spot during missions. The TLM can be used as a stand-alone device or in conjunction with the LDM. At night and in obscured battlefield conditions, the operator can recognize vehicle-sized targets at more than 3 kilometers. During day operations, targets can be recognized at more than 7 kilometers. The LDM emits coded laser pulses compatible with DoD and NATO laser-guided munitions. Targets can be designated at ranges greater than 5 kilometers.

Weight (total system): 35 pounds (LLDR 1) and less than 30 pounds (LLDR 2) for a 24-hour mission



Lightweight Laser Designator Rangefinder 2



Lightweight Laser Designator Rangefinder 1

Joint Effects Targeting System (JETS)

MISSION

Provides the ability to acquire, locate, mark, and designate for precision guided and laser-guided munitions, and provides connectivity to the joint forces through fire and close air support digital planning/messaging devices.

The **Joint Effects Targeting System (JETS)** is a joint collaboration between the U.S. Army, Air Force (USAF), and Marine Corps to develop and field a one-man portable targeting system for forward observers and Joint Terminal Attack Controllers (JTACS) in the field.

The Army is the lead agency for developing this capability; however, Joint Integrated Product Teams and Joint Memorandums of Agreement will ensure a cooperative and coordinated effort by the JETS team. The JETS will provide the light force with significantly improved capability to precisely and accurately engage targets in a variety of situations.

This future system will answer the need for a very light weight, highly accurate targeting system that will allow target engagements with precision munitions (e.g., JDAM, Excalibur, and laser-guided weapons) and provide crucial digital connectivity to request and control indirect fires and close air support from all joint assets. The JETS' lighter weight will allow small units supported by USAF Tactical Air Control Parties, JTACS, and forward observers to have access to precision targeting even in rugged mountainous terrain.

The JETS will reduce friendly fire and collateral damage by improving the ability of Soldiers to differentiate between enemy combatants and non-combatants, and to accurately and reliably locate targets while interfacing with Blue Force tracking systems and overhead surveillance assets to improve situational awareness. The JETS is composed of two major increments: the Target Location Designation System (TLDS) and the Target Effects Coordination System (TECS).

The TLDS will provide the dismounted observer and JTAC with a common enhanced lightweight hand-held capability to rapidly acquire, accurately locate, positively identify, and precisely designate targets. The TECS will provide a networked, automated communications capability to plan, coordinate, and deliver fire support, as well as provide terminal close air support guidance.



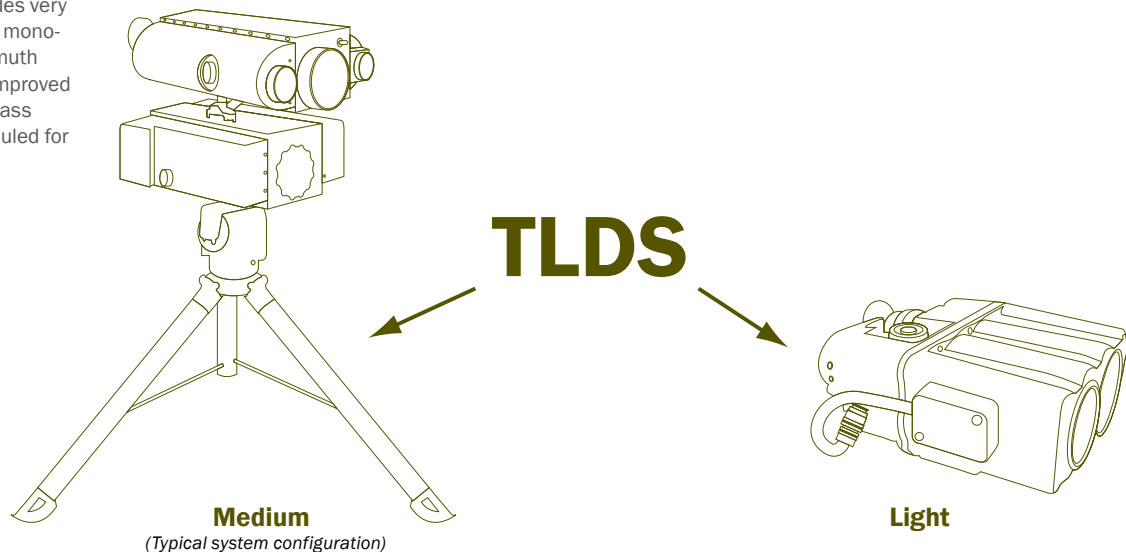
*Joint Effects Targeting System (JETS)
Target Location Designation System (TLDS)*

Soldier Precision Targeting Devices Future Initiatives

TARGET LOCATION/DESIGNATION SYSTEMS (TLDS)

ARMY TECHNOLOGY OBJECTIVE

In support of PM-SPTD, the Army's Night Vision and Electronic Sensors Directorate is developing a smaller, lighter, and more power-efficient target location and laser designation system that will provide improved target acquisition capability using an improved mercury cadmium telluride, mid-wave infrared focal plane array technology. This focal plane technology provides rapid cool down to operational temperature and supports the incorporation of "see spot," allowing the operator to observe the designator beam improving the accuracy of laser designation missions. The TLDS technology development effort also provides very lightweight designator capability using end-pumped monoblock design. This effort is coordinated with the Azimuth Sensor (AVAM) work shown below, which develops improved GPS and gyrocompass technology. Two prototype brass boards will be demonstrated. Development is scheduled for completion in FY11.





Project Manager Soldier Warrior (PM SWAR)

**Product Manager
Air Warrior**

**Product Manager
Ground Soldier**

**Product Manager Mounted
Soldier**

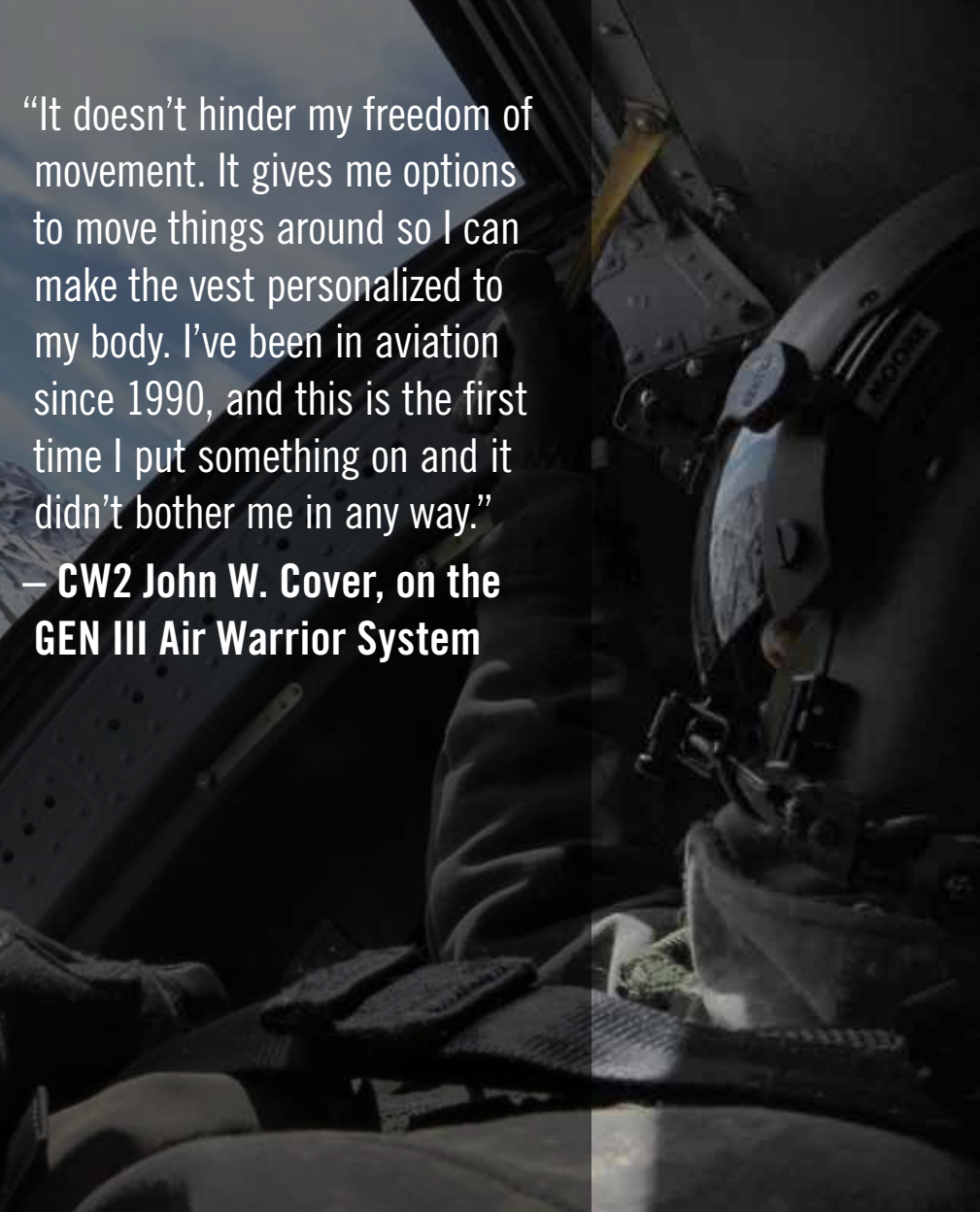
PM SWAR supports Soldiers through the acquisition of integrated Soldier systems. Current systems include Land Warrior, Nett Warrior, Mounted Soldier, and Air Warrior. PM SWAR product managers develop and integrate components into complete systems designed to increase combat effectiveness, decrease combat load, and improve mission flexibility.





“It doesn’t hinder my freedom of movement. It gives me options to move things around so I can make the vest personalized to my body. I’ve been in aviation since 1990, and this is the first time I put something on and it didn’t bother me in any way.”

— **CW2 John W. Cover, on the GEN III Air Warrior System**



PRODUCT MANAGER AIR WARRIOR (PM AW)

PM AW integrates all aviation life support and mission equipment into an ensemble that improves the combat effectiveness of the Army aircrew member. This system leverages several joint service technology efforts to create a modular system that increases situational awareness and freedom of movement at the flight controls, enhances mobility to safely operate aircraft systems, reduces physiological stress, facilitates aircraft entry and exit, and provides survival gear in the event that an aircraft goes down over land or water.



The **Electronic Data Manager (EDM)** is a touch-screen computer system in a kneeboard configuration that puts advanced digital tools directly into the hands of Army aviators. It provides GPS moving map navigation, over-the-horizon messaging, increased situational awareness with Blue Force Tracking, mission planning, and aircraft performance planning information.



The **Portable Helicopter Oxygen Delivery System (PHODS)** is a lightweight, wearable device that provides oxygen to Soldiers without restricting their movements in and around their aircraft. It replaces the Helicopter Oxygen System, which weighed more than 100 pounds and could not be fitted on all Army rotary wing aircraft.

Air Warrior (AW) Survival Equipment Subsystem

MISSION

Provides enhanced mission effectiveness, leveraging clothing and equipment to maximize aircrew member survivability.

Air Warrior (AW) is a modular, integrated, rapidly reconfigurable combat aircrew ensemble that saves lives and maximizes Army aircrew mission performance. Previous aviation life support equipment consisted of a non-integrated assemblage of protective and survival gear. AW uses a systems approach to equipping the aircrew and closes the capability gap between human and machine. Fielded incrementally in blocks to rapidly provide enhanced capabilities to the warfighter, AW leverages and integrates clothing and equipment, such as the Army Aircrew Combat Uniform and ballistic protection, from other product managers.

AW Block I includes:

- Survival Equipment Subsystem, which integrates first aid, survival, signaling, and communications equipment with body armor and over-water survival subsystems
- Microclimate Cooling System, which increases effective mission duration in heat-stress environments by more than 350 percent
- Aircrew Integrated Helmet System, a lighter helmet with increased head and hearing protection

AW Increment III includes:

- Electronic Data Manager, a portable digital mission planning device for over-the-horizon messaging and enhanced situational awareness capabilities through connectivity to Blue Force Tracking-Aviation
- Aircraft Wireless Intercom System for secure cordless, hands-free aircrew communications
- Survival Kit, Ready Access, Modular (SKRAM) Go Bag with integrated hydration
- Portable Helicopter Oxygen Delivery System, a Soldier-worn supplemental breathing oxygen system for high-altitude operations
- Communication Enhancement and Protection System (CEPS), provides helmet hear-through capability





Primary Survival Gear Carrier (PSGC)

Aircraft Wireless Intercom System (AWIS)

MISSION

Enhances aircrew safety by delivering wireless communication between crew members in and around the aircraft during missions.

The **Aircraft Wireless Intercom System (AWIS)** is a joint effort with the U.S. Navy that provides increased safety and mission performance. For aircrews operating in and around aircraft, the AWIS eliminates the mobility restrictions and safety hazards inherent to tethered intercoms. The hands-free mode increases safety in high-risk search and rescue, nighttime, and rescue hoist operations. The system also improves communications and safety during operations such as refueling, loading, offloading, and re-arming.

AWIS supplements the current aircraft corded intercom system for both flight and ground operations for the Army's CH-47 and HH/UH-60 aircraft, and the Navy's CH-46, SH-60, and CH/HH-53 aircraft. The system consists of one aircraft-mounted interface unit and a mobile transceiver worn by the crew member.

The system has a full duplex voice-activated mode, hands-free mode, and a push-to-talk mode. It features 50 independent channels (aircraft networks) with up to six crew members on each aircraft network able to hear and talk simultaneously. AWIS enables simultaneous omni-directional communications among all users in the aircraft network within 200 feet of the center of the aircraft.



Aircraft access point

Aircrew mobile equipment



Aircrew Integrated Helmet System (AIHS), HGU-56/P

MISSION

Increases mission effectiveness for aircrew members with a lightweight helmet that offers improved comfort, impact protection, and sound retention and attenuation.

The **HGU-56/P Aircrew Integrated Helmet System (AIHS)** is made of an advanced composite of graphite and Spectra (a high-performance polyethylene) and is available in six sizes to fit male and female crew members. The AIHS HGU-56/P is 15 to 20 percent lighter than the SPH-4 flight helmet it replaced.

Weight: 3 pounds

Impact protection: 150 G

Chinstrap retention: 440 pounds

Acoustic protection: 82 decibels permitted

The AIHS HGU-56/P includes:

- Communication Ear Plugs, fielded in 2002, which provide increased speech intelligibility and increased sound attenuation
- Maxillofacial Shield, fielded in 2003, which provides fragmentation protection to the face





Communication Ear Plugs (CEP)

MISSION

Provides improved sound attenuation and speech intelligibility for Army aircrew.

Communication Ear Plugs (CEP) are a pair of small sound transducers paired with hollow foam ear tips. The foam ear tips increase the sound attenuation already provided by the ear cups on the HGU-56/P Aircrew Integrated Helmet System (AIHS), and the sound transducers provide a clear signal through the hollow foam ear tips. As a result, the Soldier hears clear communications that are not degraded by ambient noise. CEP were initially added to HGU-56/P helmets through a modification work order and are now integrated into new helmets during production.

The **Communications Enhancement and Protection System (CEPS)** is a commercial off-the-shelf enhancement to the CEP that allows dismounted aircrew to hear and localize sounds during escape and evade actions while wearing the HGU-56/P AIHS. Dual communication earplugs are connected to a pair of tiny sensitive microphones that are mounted on the helmet's ear domes. A toggle switches the audio input from the aircraft communications to the ear dome microphones. A gain switch allows the Soldier to adjust audible noise levels.





Electronic Data Manager (EDM)

MISSION

Enables aircrew members to plan missions quickly and to react to mission changes while in flight.

The **Electronic Data Manager (EDM)** is a light, portable touch-screen computer in the form of a kneeboard that provides the aviator with global positioning system (GPS) moving map capabilities, sunlight readability, and the ability to use Windows-based software.

The EDM includes:

- Moving map display (GPS aircraft position and waypoints)
- Tactical graphics
- Two-way Blue Force Tracking-Aviation situational awareness
- Beyond-line-of-sight text messaging
- Displays of checklists, manuals, and approach plates in PDF format
- Capability to import mission planning data from Aviation Mission Planning Systems software
- Weight and balance calculations
- Aircraft performance planning calculations
- Electronic notes

EDM Spiral 3.5 improvements include:

- 1.6 GHZ System Processor
- 2 GB RAM
- 6.4" Sealed Trans-reflective Glass Touch Screen 480x640
- Sunlight Readable and NVG Compatible Display
- 60 GB Solid State Hard Drive
- External Power, Ethernet, and USB 2.0 interfaces-enhanced speed and performance
- Ability to host future dynamic terrain and obstacle avoidance





Survival Kit, Ready Access, Modular (SKRAM)

MISSION

Provides airworthy and readily accessible life-support equipment and water in a fire-resistant and modular configuration.

The **Survival Kit, Ready Access, Modular (SKRAM)** components, tie-downs, and A-kits provide airworthy and readily accessible carriage for a 72-hour suite of life support equipment and mission water in a flame-retardant, modular, and configurable backpack. The SKRAM components improve mission endurance by providing drinking water and supplemental survival gear for an escape and evade scenario. The SKRAM is mounted on the aircraft to provide rapid access to mission-essential survival gear. During an emergency egress, the SKRAM can be quickly released for use in a survival and evasion environment.

A-kit installation provides platform-specific mounting hardware for the SKRAM.

The SKRAM Go Bag is sized to contain both the Aviation Life Support Equipment (ALSE) mandatory minimum gear and 100 ounces of water; a second Go Bag provides carriage for additional mission-specific gear. Two M-4 magazine pouches are also provided for carrying additional ammunition.

The SKRAM and tie-down straps are unit-issue, with the tie-down being configured specifically per platform. Tie-downs at approved anchorage sites on the aircraft are capable of securing the SKRAM configuration for up to a 40 G crash load.

SKRAM carriage capability requirements include:

- Additional ammunition
- Insertable on-the-go hydration system
- Rapid Fielding Initiative Modular Sleep System
- Mandatory minimum ALSE gear, including food and water
- Additional environmental gear
- In-line filter for on-the-go purification
- Chlorine tablets for water sterilization



Heads-Up Display (HUD) System, AN/AVS-7(V)

MISSION

Provides pilots with flight symbology while using the Aviator's Night Vision Imaging System during night flight operations.

The **AN/AVS-7(V) Heads-Up Display (HUD)** takes aircraft data from numerous sensors, converts it to graphic files, and provides critical operational information superimposed as symbology onto the image the pilot sees through the Aviator Night Vision Imaging System. The HUD minimizes the need for pilots to examine cockpit instrument data, thus providing increased situational awareness outside the aircraft. The HUD system consists of the A-kit, which is the wiring harnesses, mounting brackets, and some additional sensors such as air data transducers, inclinometers, and thermocouple amps; and a B-Kit, which consists of one CV-4229(V) X/ AVS-7 signal data converter; one C-12293/AVS-7 converter control unit; and two SU-180/AVS-7 display units. There is also an improved flat-panel display unit, which can replace the cathode ray tube SU-180s on the legacy platforms.





**Heads-Up Display (HUD)
System, AN/AVS-7(V) I**
PEO Soldier Portfolio FY2011

Laser Eye Protection Visor

MISSION

Protects aircrew members' eyes from low-energy laser threats and hazards.

The **Laser Eye Protection Visor** is a family of polycarbonate ballistic visors that protect aircrews' eyes from primary laser threats and hazards.





Maxillofacial Shield (MFS)

MISSION

Provides aircrew with facial ballistic protection from fragments and structure impacts.

The **Maxillofacial Shield (MFS)** protects Army aircrew members from ballistic threats and also provides improved field of view and anti-fogging capabilities over the previous MFS design. It is to be used with the Aircrew Integrated Helmet System (AIHS) HGU-56/P helmet. It is compatible with visors, the Aviator Night Vision Imaging System, Communication Ear Plugs, Communication Enhancement and Protective System, spectacles, microphones, and lip lights.





Microclimate Cooling System (MCS)

MISSION

Protects the individual aircrew member from heat stress injuries in hot weather environments or while wearing chemical and biological protective clothing.

The **Microclimate Cooling System (MCS)** reduces heat stress to Army helicopter crew members, especially while they are wearing chemical and biological protective equipment in hot weather. The MCS gives Army aviators an increase of more than 350 percent (from 1.6 hours to 5.7 hours) in heat-stress mission endurance times while they are wearing chemical protective equipment or other crew member clothing.

The MCS includes a quick-disconnect function to allow aircrew members to safely and quickly exit an aircraft without a snagging hazard. The MCS includes a Microclimate Cooling Garment, a vest worn as an undergarment, and a small Microclimate Cooling Unit, which is an autonomous vapor compressor system that chills water and pumps it through small tubes embedded in the vest. The vest is worn beneath chemical protective clothing or other crew member clothing.





Portable Helicopter Oxygen Delivery System (PHODS)

MISSION

Provides the Soldier with compressed oxygen to altitudes above 10,000 feet.

The **Portable Helicopter Oxygen Delivery System (PHODS)** is a Soldier-worn portable oxygen system that delivers compressed oxygen from a lightweight steel oxygen bottle attached to the Air Warrior vest. The system provides oxygen via a nasal cannula, up to 18,000 feet, and via a mask at altitudes above 18,000 feet. PHODS provides supplemental oxygen without restricting movement in and around the aircraft. The system uses a battery-powered pulse-demand oxygen regulator unit that automatically provides on-demand oxygen regulated to altitude based on detected barometric pressure. The PHODS regulator includes algorithms to detect and react to the aviator's breathing patterns to ensure that the user is receiving the proper oxygen flow based on individual physiological constraints.

The Soldier-worn PHODS components weigh six pounds, compared with the legacy Helicopter Oxygen System (HOS), which weighed more than 100 pounds. PHODS also improves mission capability in that each individual system can be replaced if there is a mechanical issue. Mechanical problems with the HOS meant the aircraft could not execute high altitude operations.

PHODS is supported by a mobile oxygen generating/recharge station that is provided to designated units. The station combines the high pressure and variable flow rate available from an oxygen cylinder with the oxygen generation and replenishment of an oxygen concentrator. By simply connecting an empty oxygen cylinder, it will automatically refill. These mobile stations have the added benefit of being easily transported to battlefield locations.





Air Warrior Future Initiatives

AIR SOLDIER INCREMENT 1A

Building on the legacy Air Warrior gear carriage and clothing system, the Air Soldier (AS) Increment 1a initiative focuses on improving aircrew survivability, comfort, and efficiency by reducing weight and torso bulk, improving head and laser eye protection, and increasing rear crew member mobility.

The AS Increment 1a will feature optimized survival equipment (72-hour requirement) and a pocket system that eliminates unnecessary items. It also will include standardized survival gear components. It will reduce the bulk and weight of the legacy Air Warrior body armor system. As part of the AS Increment 1a, the Modular Aircrew Common Helmet (MACH) or an improved legacy HGU-56/P helmet will offer a 15 to 50 percent improvement in head impact protection. Advances in laser eye protection (from 3 to 5 fixed wavelengths) are also included in the initiative.

The Wearable Environmental Control System (WECS), powered by an Integrated Portable Power Source, will eliminate the cooling system umbilical for nonrated crew members. The AS Increment 1a will also feature enhanced SA/C3 capabilities to achieve JBC-P interoperability. Initial implementation of terrain/obstacle avoidance capability will be through the AW Electronic Data Manager.

Contract award for AS Increment 1a is expected in 2011.





“The Land Warrior system provides a lot more accuracy when things go kinetic. With this system it’s a lot easier for me to see where my battle buddies are, where my leadership is, where some of my subordinates are. It allows us to communicate a lot more easily.”

— SSG Alan Pelletier



PRODUCT MANAGER GROUND SOLDIER (PM GS)

PM GS provides unprecedented situational awareness and battle command through the current system—Land Warrior (LW)—and the future system—Nett Warrior (NW) (formerly Ground Soldier System Increment I). Digital imagery and GPS locations provided by LW and NW enable thorough mission planning, ramp-side convoy briefings, and on-the-fly changes during missions for high-value targets (HVTs). LW and NW allow teams, squads, and platoons to pinpoint the location of improvised explosive devices (IEDs), cells, or HVTs with improved speed and precision. LW and NW enhance dismounted Soldiers' survivability by rapidly disseminating locations of suspected enemy IEDs and snipers. LW and NW also help prevent fratricide by providing locations of mounted forces and dismounted friendly Soldiers.



Land Warrior (LW) is a Soldier-worn advanced navigation and network communications tool that increases situational awareness and communications between units. With LW, Soldiers can move more quickly, operate more safely, and target with greater accuracy.



Nett Warrior, the successor to Land Warrior, features improvements in usability, size, and weight, and capability.

Land Warrior (LW)

MISSION

Provides unprecedented Soldier tactical awareness and significant improvements in lethality, survivability, mobility, and sustainability.

Land Warrior (LW) is a first-generation integrated modular fighting system for dismounted Soldiers that combines state-of-the-art technologies to create a lethal, survivable Soldier system linked to the digital battlefield. Land Warrior integrates a computer, helmet-mounted display, advanced GPS navigation, and an Enhanced Position Location Reporting System-based voice/data networked radio that allows Soldiers to see their location, see the location of friendly forces in real time, and exchange vital tactical information, giving equipped Soldiers a decisive advantage. The system's approach optimizes and integrates multiple capabilities with minimal impact on the Soldier's combat load and logistical footprint. Land Warrior is interoperable with Force XXI Battle Command Brigade and Below (FBCB2).

Land Warrior was successfully used for the first time in combat by the 4th Battalion, 9th Infantry Regiment (4-9 IN), 4th (Stryker) Brigade, 2nd Infantry Division during its deployment to Iraq from April 2007 through June 2008. In 2009, Land Warrior was fielded to the 5th Stryker Brigade Combat Team (SBCT), 2nd Infantry Division for its deployment in support of Operation Enduring Freedom (OEF). The 2nd Stryker Cavalry Regiment received the LW equipment from 5/2 ID (SBCT) in 2010.



Nett Warrior (NW)

MISSION

Provides overmatch operational capabilities to all ground combat Soldiers and small unit operations.

The **Nett Warrior (NW)** (formerly Ground Soldier System Increment I) is an integrated dismounted leader situational awareness (SA) system for use during combat operations. The system provides unparalleled SA to the dismounted leader, allowing for faster and more accurate decisions in the tactical fight. With advanced navigation, SA, and information sharing capabilities, leaders are able to avoid fratricide and are more effective and more lethal in the execution of their combat missions.

The NW program will focus on the development of the SA system, which has the ability to graphically display the location of an individual leader's location on a digital geo-referenced map image. Additional Soldier and leader locations are also displayed on the hands-free digital display. NW is connected through a secure radio that will send and receive information from one NW to another, thus connecting the dismounted leader to the network. These radios will also connect the equipped leader to higher echelon data and information products to assist in decision making and situational understanding. Soldier position location information will be added to the network via interoperability with the Army's Rifleman Radio capability. All of this will allow the leader to easily see, understand, and interact in the method that best suits the user and the particular mission.

NW will employ a system-of-systems approach, optimizing and integrating capabilities while reducing the Soldier's combat load and logistical footprint.



Ground Soldier Future Initiatives

SOLDIER PLANNING INTERFACES AND NETWORKED ELECTRONICS

This effort will mature and demonstrate technologies for improved mobility, information management, and lethality through a Government-developed, on-Soldier, modular open systems architecture for electronic components and software that incorporates a wireless (National Security Agency [NSA]-certified) Personal Area Network (PAN) subsystem for Small Combat Unit (SCU) commanders and Soldiers.

The wireless PAN subsystem protocol will be compatible with emerging on-Soldier electronic subsystems and will not interfere with current and future tactical radio systems. The system will define and enable interoperability with current and future Battle Command and tactical radio systems and networks. The on-Soldier wireless PAN subsystem will allow the optimized layout of hardware components and interface sets to allow Soldiers the ability to add or remove mission-specific gear to address Mission, Enemy, Time, Terrain, and Civilians (METT-C) and Size, Weight, Power, and Cost (SWaP-C) constraints. The on-Soldier optimized Battle Command software will reduce the time and human intervention required for a coordinated and synchronized situational awareness (SA) and attack on-time sensitive/ fleeting targets by a Future Force (FF) small unit. The effort will leverage emerging hardware from the Joint Tactical Radio System (JTRS) handheld, manpack, and small form-fit (HMS) family of radios and utilize the JTRS JPEO approved Soldier Radio Waveform (SRW) to serve as the transport layer that provides network connectivity to the tactical Internet for the SCUs. Through consolidation of on-Soldier electronics, Soldier-centric control interfaces,

and open-architecture software services, this effort will leverage multiple Government and contractor technologies to achieve capabilities relating to User Defined Operating Picture and information management and networking software packages down to the Leader and Squad level. The effort will demonstrate an “echelon-centric software suite” to provide Soldier-defined operational picture and semi-automated machine-to-machine data exchange with a reliable Soldier-in-the-loop targeting and SA reporting system. The Instant-On system capability will be realized through power-aware software, hardware and network technologies to maximize the on-Soldier power subsystem. Demonstrations in FY11 will measure the mobility, information management, and targeting effects using role-based applications for small unit commanders and Soldiers.

TACTICAL COMMUNICATION AND PROTECTIVE SYSTEM (TCAPS)

TCAPS began as an initiative under the Soldier Enhancement Program (SEP) within PEO Soldier. Now it has taken its own direction in becoming an ACAT III program, providing Soldiers with an improved environmental enabled communication capability that interfaces with current army radios. TCAPS gives Soldiers access to communication and radio systems in a noisy environment and provides hearing protection from both steady state and impulse noise. This technological advance allows the Soldier to maintain the ability to locate and detect opposing forces and to facilitate face-to-face communication. TCAPS is compatible with existing Organizational Clothing and Individual Equipment (OCIE) and radio equipment. TCAPS supports all Military Occupational Specialties (MOSs) by providing enhanced

capabilities and improvements that meet the Soldier's requirements of hearing protection and communications (environmental and radio). Soldiers must use all of their senses to survive and perform on the modern battlefield. They use their hearing to detect, locate, and recognize the enemy and threat activities often when there are no other indicators of enemy presence and location.

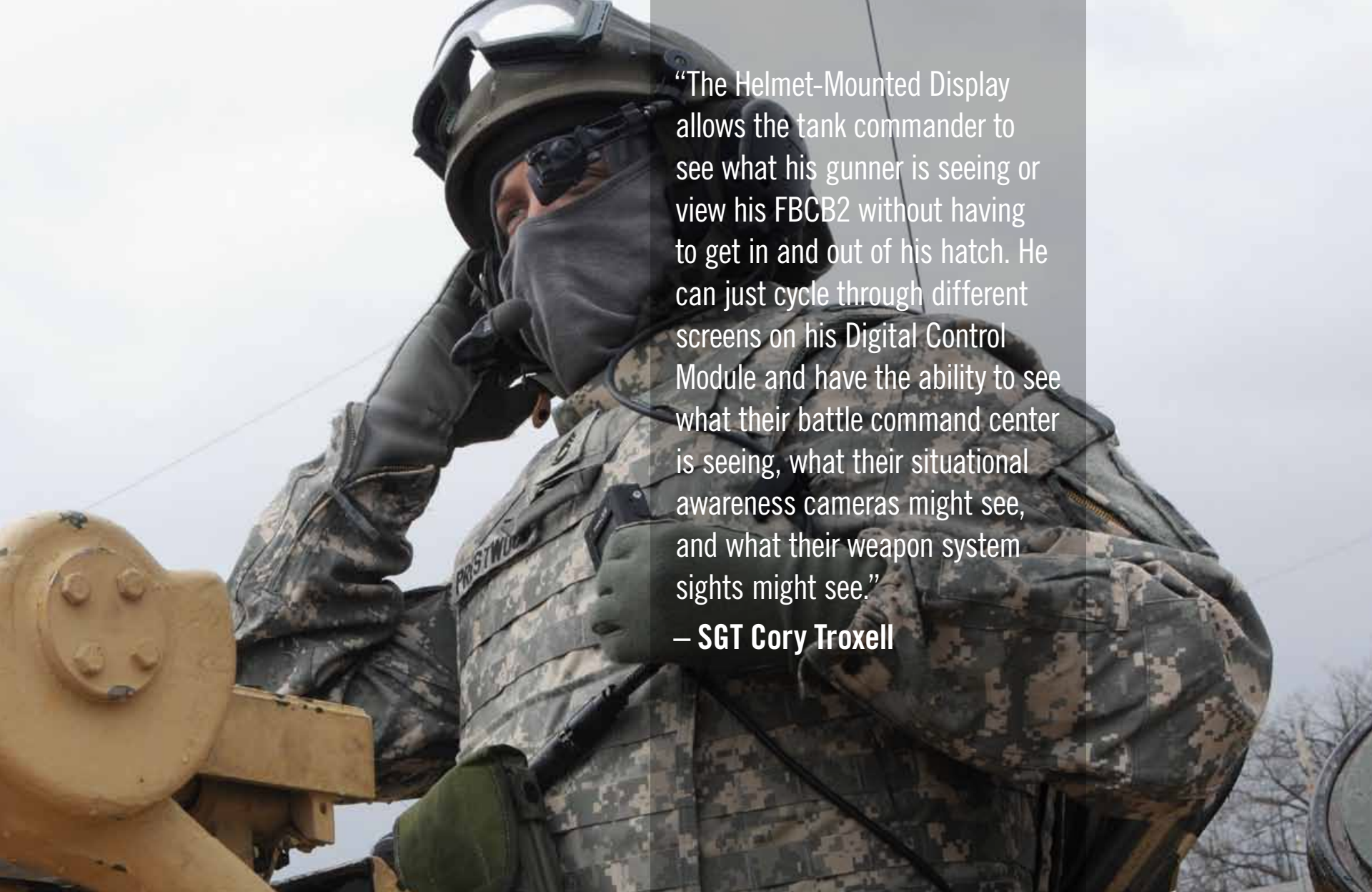
Combat veterans value hearing as a 360-degree warning, whereas vision is acknowledged as slightly more than 180 degrees. Face-to-face communications while conducting a variety of missions (e.g., day and night recon, chemical, biological, radiological, nuclear and high-yield explosives, defensive operations) in a multitude environment (night, noisy, close quarters, etc.) is often critical for mission success. At times noise presents a significant obstacle to operational success. Subterranean environments and operations on urban and complex terrain are particularly hazardous to hearing. In such scenarios, it is crucial that subtle sounds be heard through the use of an enhanced hearing capability that will also protect the Soldier's hearing. TCAPS fills this operational gap by allowing Soldiers to hear sounds at enhanced levels with better clarity while reducing or removing exposure to hazardous impulse noise and blast overpressure.

The requirement for the TCAPS program is currently in Army staffing. Over the past year, commercial candidates have been tested by TCAPS for field application; some are currently being used by Product Manager Ground Soldier. The Land Warrior system that is being fielded through Operational Needs Statements deploys with one of the systems, and the Nett Warrior system uses two of the systems as they undergo testing.

POWER FOR THE DISMOUNTED SOLDIER

Product Manager Ground Soldier is working with the Communications-Electronics Research Development and Engineering Center (CERDEC), the Natick Soldier Research Development and Engineering Center (NSRDEC), and the Army Research Lab (ARL) to deliver critical power technology to the battlefield for essential command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) equipment required for Army Brigade Combat Team Modernization. This initiative addresses the need to supply lightweight power and technology solutions for longer missions under all environmental conditions. The objective is to develop, demonstrate, and transition to higher-energy, lighter-weight

primary and rechargeable batteries, with half the carry weight and double the mission times relative to current batteries. This includes micro-electronic mechanical systems (MEMS)-based technology to further increase power efficiency and reduce system size and weight. The resulting batteries will adapt to legacy equipment and will provide lighter-weight “all-aspect” power for future equipment. The joint effort also addresses hybrid power source technologies based on fuel cells that will allow triple the mission times for multi-day Soldier missions, and enable months-long unattended sensor emplacements. Developers are also working on improved human and self-powered battery chargers for tactical use. The projected completion of this initiative is FY11.



“The Helmet-Mounted Display allows the tank commander to see what his gunner is seeing or view his FBCB2 without having to get in and out of his hatch. He can just cycle through different screens on his Digital Control Module and have the ability to see what their battle command center is seeing, what their situational awareness cameras might see, and what their weapon system sights might see.”

– **SGT Cory Troxell**

PRODUCT MANAGER MOUNTED SOLDIER SYSTEM (PM MSS)

PM MSS integrates capabilities that improve combat effectiveness for mounted Soldiers. MSS extends platform capabilities to vehicle crew members including commanders, drivers, and gunners.

The MSS team conducts capability integration, principally along Soldier and platform lines. Three major hardware subsystems (Microclimate Cooling, Cordless Communications, and Helmet-Mounted Display) are being integrated into Heavy Brigade Combat Team and Stryker Brigade Combat Team platforms to extend capability to the mounted crewman. MSS integrates these capabilities with more than 20 individual protective and clothing components that enable the Soldier to safely perform his crew and mission functions, both inside and outside of his platform.



Mounted Soldier System (MSS) enhances the Soldier/platform fusion required for optimal mission performance over a broad spectrum of operations. MSS links the sensory, situational awareness, and force protection capabilities of the platform to the Soldier, while simultaneously linking the detectory, processing, and cognitive capabilities of the Soldier to the platform to form an integrated, synergistic, combat-effective system.

Mounted Soldier System (MSS)

MISSION

Enhances the survivability, situational awareness, lethality, mobility, and sustainability of all combat vehicle crewmen and other Soldiers performing mounted operations.

The **Mounted Soldier System (MSS)** is an evolutionary program with identified increments. Increment I provided the Mounted Warrior Helmet-Mounted Display, and Increment II will augment current capabilities under the MSS program. MSS will provide the combat vehicle crew members increased capabilities to conduct offensive and defensive operations.

The MSS consists of a Heads-up Display, Cordless Communications, Microclimate Cooling, and force protection items. These subsystems will provide platform commanders and vehicle crew members increased effectiveness on the network-centric battlefield in areas of command and control, situational awareness, communications, and force protection. MSS also provides improved integration and systems engineering to enhance capability synergy and allow crewmen to better perform their functions in the confined spaces of combat vehicles.

Helmet-Mounted Display Capabilities:

The Helmet-Mounted Display subsystem shows situational awareness information and sensors by controlling video signals coming from various vehicle sources. The integration supports up to four crewmen per platform and up to five video signals.

Cordless Communications Capabilities:

The Cordless Communications Capabilities system provides increased safety and mission performance to the platform's crew with the addition of a wireless connection capability to the vehicle's intercom and radios. It allows the crew to communicate by voice over the platform's intercom system when mounted or dismounted within 300 meters of their platform. The system automatically detects when a crewman becomes disconnected from the intercom system and allows the disconnected crewman to continue to have voice communication with the crew.

Microclimate Cooling System:

The Microclimate Cooling System is integrated into the platform and features a cooling vest worn by the Soldier. It reduces crewman heat stress and provides increased comfort during operations in hot environments.

Soldier Force Protection System Capabilities:

Soldier safety is enhanced with the Improved Combat Vehicle Crewman Coverall, Fire Resistant Army Combat Uniform (FR ACU), Fire Resistant Environmental Ensemble (FREE), flame-resistant and moisture-wicking undergarments, ballistic and laser eye protection, flame-resistant hand, face, and foot protection, and the maxillofacial shield. Soldier effectiveness is improved with the ambidextrous individual weapon holster, an integrated CVC Helmet system, and a lighter-weight, multi layer, improved body armor system.



Helmet-Mounted Display System



Cordless Communications System

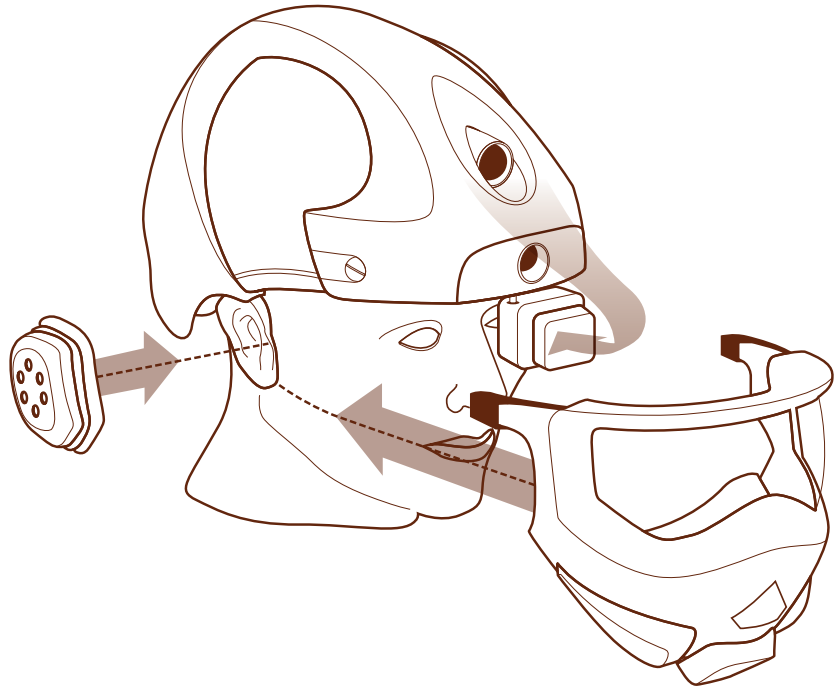


Microclimate Cooling System

Mounted Soldier System Future Initiatives

MOUNTED SOLDIER SYSTEM FUTURE INCREMENTS

Over the next few years, the Mounted Soldier System program will leverage improvements in technology for enhanced system performance in the areas of ballistic and impact protection, hearing protection and enhancement, video displays, audio and communications systems, training sensors, and chemical, biological, radiological, and nuclear capabilities. These new technologies provide enhancements to the MSS in the form of engineering changes to the product line.



Project Manager Soldier Weapons (PM SW)

Product Manager
Individual Weapons

Product Manager
Crew Served Weapons

PM SW ensures that Soldiers on the battlefield have overmatch capabilities in individual and crew served weapons. PM SW supports Soldiers through the development, production, fielding, and sustainment of current and future weapons systems, as well as associated target acquisition/fire control products. As a result of PM SW's efforts, Soldiers benefit from continuous improvement programs and are equipped with systems that enhance both survivability and lethality. Two product managers under PM SW drive the mission to provide Soldiers battlefield superiority: Product Manager Individual Weapons and Product Manager Crew Served Weapons.





“I loved the M4. For what we were doing in Iraq it was the perfect weapon system. I love the collapsible buttstock. It makes it a little more maneuverable for me. It’s just great with the modifications you can do to it such as the pistol grip, taclights, night-vision lasers, also optics sights. Everything was great about it.”

— SSG Brian Hong

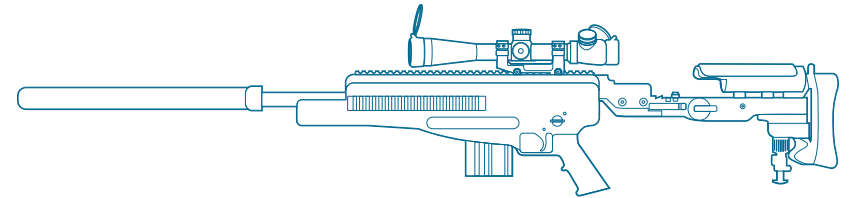
PRODUCT MANAGER

INDIVIDUAL WEAPONS (PM IW)

PM IW is responsible for current and future rifles, carbines, pistols, shotguns, grenade launchers, and related target acquisition/fire control products.



The **XM25, Counter Defilade Target Engagement (CDTE) System** will provide the infantry Soldier with leap-ahead overmatch capability and range with a family of 25mm programmable air burst munitions.



The **M24E1 Enhanced Sniper Rifle (ESR)** will provide the Soldier greater range against personnel targets over existing 7.62 x 51mm sniper weapons.

XM25, Counter Defilade Target Engagement (CDTE) System

MISSION

Provides the infantry Soldier with a leap-ahead overmatch capability that will dramatically increase lethality and range with a family of 25mm programmable ammunition.

The **XM25, Counter Defilade Target Engagement (CDTE) System** enables the small unit and individual Soldier to engage defilade targets by providing a 25mm air bursting capability that can be used in all operational environments. The CDTE is a direct-fire, semi-automatic, shoulder-fired, man-portable weapon system. An individual Soldier employing basic rifle marksmanship skills can effectively engage exposed or defilade targets in just seconds.

The system allows the individual Soldier to quickly and accurately engage targets by producing an adjusted aimpoint based on range, environmental factors, and user inputs. The target acquisition/fire control integrates thermal capability with direct-view optics, laser rangefinder, compass, fuze setter, ballistic computer, laser pointer and illuminator, and an internal display.

The CDTE System reduces the reliance of small units on non-organic assets (mortars, artillery, and air support) and the need to compete for priority of fires when time is critical. In addition to air bursting ammunition, a family of ammunition is being developed to support other missions, which could include armor-piercing and nonlethal scenarios.

Caliber: 25mm

Weight: 12-12.5 pounds

Length: 29.5 inches





25mm ammunition, currently in development



Armor-piercing



Training



High Explosive
Air Bursting

25mm ammunition, future development



Less-than-lethal
(Blunt)



Less-than-lethal
(Air Bursting)



Door-breaching

M4 Carbine

MISSION

Increases the lethality and operational flexibility of the Soldier with a carbine-length version of the M16 rifle.

The **M4 Carbine** is designed for lightness, speed, mobility and firepower, and replaces the M3 Submachine Gun, select M9 Pistols, and M16A2 Rifles for unit leaders, crew served gunners, vehicle crews, radio operators, light infantry, airborne/air assault, and combat engineers. It provides improved firepower over the M3 and M9 and is one pound lighter and more portable than the M16 series of rifles. The M4 series of carbines can also be mounted with the M203A2 Grenade Launcher, M320 Grenade Launcher, or M26 Modular Accessory Shotgun System.

The **M4 Adapter Rail System (ARS)** replaces the hand guards, allowing a Soldier with an M4 Carbine additional MIL-STD-1913 rails to attach mission-specific accessories to enhance lethality and Soldier effectiveness. Accessories such as the laser rangefinder, infrared illuminator/pointer, and thermal sights can be added or removed as the mission dictates without the use of special tools. The ARS has been incorporated into the standard Army M4 configuration.

In post-combat surveys, 94 percent of Soldiers rate the M4 as an effective weapons system. The weapon incorporates 62 refinements since its inception.

Caliber: 5.56mm

Weight without magazine: 6.75 pounds

Overall length: 30.57 inches (retracted), 33.82 inches (extended)

Barrel length: 14.5 inches

Effective range: 500 meters point target





M16A2/A4 Rifle

MISSION

Increases the Soldier's lethality and operational flexibility through improvements to the M16A2.

The **M16A2/A4 Series 5.56mm Rifle** is the most prevalent combat rifle in the U.S. Army inventory. It is a gas-operated, air-cooled, shoulder-fired weapon that can be fired either in automatic three-round bursts or semi-automatic single shots.

The M16A2 has an integral rear sight while the M16A4 includes a MIL-STD-1913 upper receiver and an **M5 Adapter Rail System (ARS)** with a Back-up Iron Sight. Both systems can accommodate modern optics and accessories, as well as configurations that incorporate M203 and M320 40mm grenade launchers. These accessories can be added or deleted as the mission dictates, without the use of special tools.

Caliber: 5.56mm

Weight without magazine: 8.13 pounds

Overall length: 39.6 inches

Barrel length: 20 inches

Effective range: 550 meters point target





M320 Grenade Launcher (GL)

MISSION

Enables the Soldier to accurately engage the enemy in daylight or total darkness with a safer, more reliable grenade launcher that reduces aiming error and increases first-round hit probability.

The **M320 Grenade Launcher (GL)** is the replacement to all M203 series of grenade launchers on M16 Rifles and M4 Carbines. A modular system, it attaches under the barrel of the rifle or carbine and can convert to a stand-alone weapon. The M320 improves on current grenade launchers with an integral day/night sighting system and improved safety features. It also has a side-loading unrestricted breech that allows the system to fire longer 40mm low-velocity projectiles (NATO standard and non-standard).

The new sighting system allows Soldiers to accurately target in daytime or nighttime, while reducing aiming error and increasing first-round hit probability. Located on the side of the launcher, the sighting system design lessens interference with rifle and carbine sights, reduces attaching operations to one action, and eliminates the need to re-zero after reattaching to a weapon.

The M320 is more reliable and safer because it uses a more modern double-action trigger/firing system. If the weapon misfires, the operator can pull the trigger again, compared with the M203, which requires cycling of the breech to re-cock the firing pin and pulling the trigger again.

The new pistol grip design eliminates the need to use the magazine as a hand grip. The latest in lightweight material composites are used to improve durability.

Caliber: 40mm

Weight: 6.7 pounds (stand-alone); 5.13 pounds (attached mode on M4); 5.36 pounds (attached mode on M16)

Length: 11 inches (stand-alone); 8 inches (barrel)

Effective range: 350 meters



M320 Stand-Alone System



M320 Mounted Underneath M4



**M320 Grenade Launcher
(GL) | PEO Soldier Portfolio
FY2011**

M203A2 Grenade Launcher

MISSION

Increases the lethality and operational flexibility of the Soldier with a grenade capability that bridges the gap between hand grenade and mortar.

The **M203A2 Grenade Launcher** is the latest modification to the M203 40mm Grenade Launcher. It provides a mounting system compatible with the M16A4 Rifle and M4 Carbine. The modification includes a quick-attach bracket for the grenade launcher and a leaf sight to attach to the Adapter Rail System.

The **M203 Day-Night Sight (DNS)** provides an aiming device for the M203 Grenade Launcher for all lighting conditions, increasing the lethality and operational flexibility of the Soldier. The DNS provides increased accuracy over the current quadrant and leaf sight systems for both point and area targets. The DNS is equipped with integral iron sights in case of electronics failure or for situational expediency.

Caliber: 40mm

Weight: 3 pounds

Length: 12 inches

Effective range: 350 meters





M26 12-Gauge Modular Accessory Shotgun System (MASS)

MISSION

Enhances Soldier effectiveness with lethal, less-than-lethal, and door-breaching capabilities with a 12-gauge accessory shotgun attachment that provides faster transition time between the primary weapon and shotgun.

The lightweight **M26 12-Gauge Modular Accessory Shotgun System (MASS)** attaches to the M4 Carbine and zeroes to the host weapon. It is also designed to operate as a stand-alone system, and comes with a recoil-absorbing, collapsible buttstock. With a Picatinny rail on top, the receiver can be used to mount sighting equipment. The bolt handle is mountable on either side for ambidextrous handling.

The MASS enables Soldiers to transition more quickly between lethal and less-than-lethal fires and adds the capability of a separate shotgun without carrying a second weapon. Additional features include a box magazine, flip-up sights, and an extendable stand-off device for door breaching.

- Caliber:** 12 Gauge
- Weight:** 3.5 pounds (attached mode); 5.5 pounds (stand-alone)
- Length:** 16.5 inches (attached mode); 25 inches (stand-alone)
- Effective Range:** 25 meters



M26 Stand-Alone System



M26 Mounted Underneath M4



M500 Shotgun

MISSION

Increases the Soldier's capability for door breaching and crowd control.

The **M500 Shotgun** provides short-range lethal, less-than-lethal crowd control, and door-breaching capabilities with appropriate ammunition types. The shotgun is carried in addition to selected Soldiers' primary weapon and is commonly issued to military police, infantry, engineers, and armorers.

The M500 Shotgun is a manually (slide) operated repeating shotgun chambered in 12 gauge, with an integral 5-round tubular magazine.

Caliber: 12 Gauge

Weight: 7.7 pounds

Length: 39.5 inches

Effective range: Ammunition dependent





M107 Semi-Automatic Long Range Sniper Rifle (LRSR)

MISSION

Enables sniper teams to employ greater destructive force against light materiel and personnel targets at longer ranges.

The **M107 Semi-Automatic Long Range Sniper Rifle (LRSR)** fires .50 caliber ammunition and is capable of delivering precise, rapid fire on targets out to 2,000 meters, greatly exceeding the terminal effect capability of the M110 or M24 sniper rifles. It is especially valuable during military operations in urban terrain where greater firepower and standoff ranges provide counter-sniper capability while enhancing sniper survivability.

The rifle is a commercial off-the-shelf weapon that incorporates a dual-chamber detachable muzzle brake, dual barrel springs, and long mainspring design to reduce weapon recoil. It leverages a variable power day optic sight and a 10-round detachable box magazine. It weighs 35 pounds (combat ready) and includes folding front and rear sights, fluted match-grade barrel, detachable carrying handle, rubber recoil pad, rear grips, and a MIL-STD 1913 rail. It is employed by all U.S. military services as well as 60 additional armies around the world.

Accessories include hard and soft cases, detachable folding bipod, detachable sling, extra 10-round magazines, cleaning/maintenance equipment, and manuals.

Caliber: MK211 .50 caliber
Weight: 35 pounds (combat ready)
Overall length: 57 inches
Barrel length: 29 inches
Effective range: 2,000 meters





M110 7.62mm Semi-Automatic Sniper System (SASS)

MISSION

Supplements the sniper's role to support combat operations with greater firepower, greater versatility, and more focused target engagements to improve sniper survivability.

The **M110 7.62mm Semi-Automatic Sniper System (SASS)** is an anti-personnel and light materiel weapon that fires 7.62mm ammunition out to a maximum effective range of 800 meters. It is also the first U.S. Army weapon system that integrates a quick attach/detach suppressor to reduce the weapon's firing signature. The weapon system exceeds the rate of fire and lethality of the M24 Sniper Weapon System, the previous medium-caliber sniper rifle.

The M110's Leupold Mark IV 3.5–10x scope provides both a wide field of view at low magnification for close-in engagements and a narrow field of view for precision long shots at high magnification. The SASS leverages a rapid fire/rapid reload design, variable-power day optic sight, and 10- or 20-round detachable magazines. The M110 includes a detachable folding bipod, and a MIL-STD 1913 rail. Accessories include hard and soft cases, cleaning/maintenance equipment, manuals, and the **M151 Enhanced Spotting Scope**.

The light and compact M151 allows long-range recognition, identification, and target collaboration with the sniper. With powerful and bright optics, the scope has 12-40x magnification with a 60mm objective lens diameter. The scope has a Leupold Mil Dot (round dot) reticle for both range estimation and tactical collaboration with the shooter. The scope is weatherproof and fog-proof. The overall length is 12.4 inches, and it weighs 2.31 pounds.

M151 components include the **Tactical Tripod Kit (TTK)**, a laser filter unit to protect the observer from magnified eye hazards on the battlefield, and a universal Monoloc® adapter that allows an AN/PVS-14 Monocular Night Vision Device to be attached to the spotting scope's eyepiece.

Caliber: 7.62mm

Weight: 15.3 pounds (combat ready); 17.3 pounds (combat ready with suppressor)

Length: (buttstock fully compressed)

40.5 inches (without suppressor)

46.5 inches (with suppressor)

Effective range: 800 meter point targets



M151 Enhanced Spotting Scope





M110 7.62mm Semi-
Automatic Sniper System
(SASS) | PEO Soldier
Portfolio FY2011

M24 Sniper Weapon System (SWS)

MISSION

Enables sniper teams to engage enemy personnel with a 7.62mm bolt-action rifle using precision fire at extended ranges.

The **M24 Sniper Weapon System (SWS)** is a 7.62mm bolt-action, six-shot rifle that is chambered for 7.62 x 51mm M118 long-range ammunition. Components include a day optic sight with 10-x magnification and adjustable focus, metallic iron sights, deployment kit, cleaning kit (rifle and optic), soft rifle carrying case, optic and system cases, operator's manual, and an optional bipod.

Associated support equipment includes the AN/PVS-10 Sniper Night Sight and an improved spotting scope. The SWS is a non-developmental item.

Caliber: 7.62mm

Weight: 12.1 pounds (with sling); 14.25 pounds (with sling, day optic and full magazine)

Length: 40.75 inches

Barrel length: 24 inches





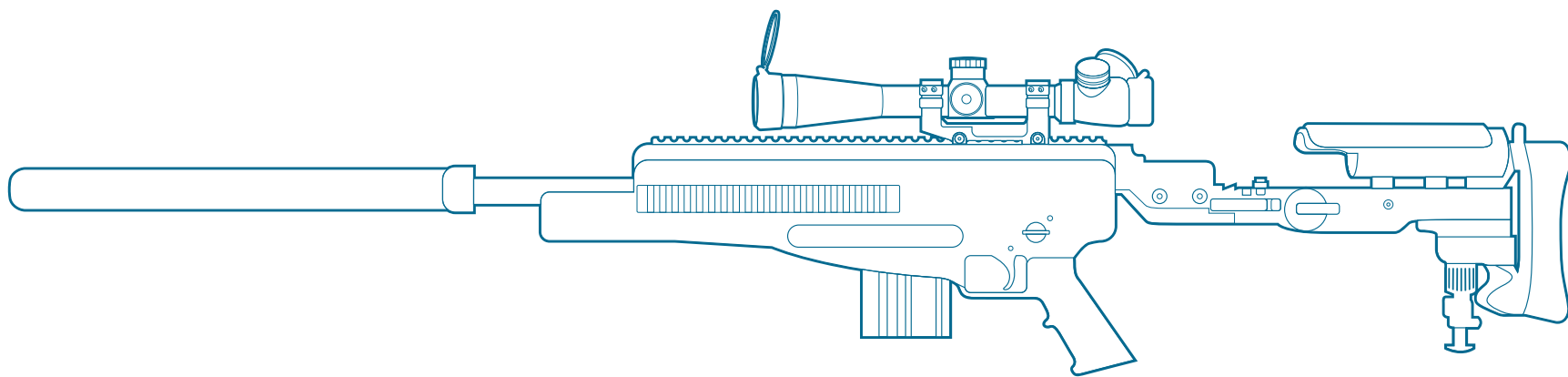
M24E1 Enhanced Sniper Rifle (ESR)

MISSION

Provides an increase in effective range against personnel targets over existing 7.62 x 51mm sniper weapons.

The **M24E1 Enhanced Sniper Rifle (ESR)** initiative is a congressionally mandated effort to upgrade the M24 Sniper Weapon System (SWS) with a Headquarters Department of the Army (HQDA) directed (urgent) requirement to outfit deployed Operation Enduring Freedom units with a sniper system capable of firing .300 Winchester Magnum ammunition. This upgrade will provide an increase in effective range against personnel targets over existing 7.62 x 51mm sniper weapons as well as a more ergonomic and technically advanced platform to mount today's state-of-the-art sniper accessories.

The upgrade will provide an ergonomic chassis that offers ample accessory mounting rails; personal adaptability with adjustable cheek piece and butt-plate; detachable box magazines for rapid reload; a sound/flash suppressor for enhanced mission effectiveness, concealment, and survivability; and an enhanced variable power day optic scope that provides a scalable stadia metric reticle for rapid ranging and hold-off corrections, wider magnification range, and zoom capability.



M14 7.62mm Enhanced Battle Rifle (EBR)

MISSION

Provides infantry squads with the capability to engage enemy targets beyond the range of M4 Carbines and M16 Rifles.

The **M14 7.62mm Enhanced Battle Rifle (EBR)** is an air-cooled, gas-operated, magazine-fed, shoulder-fired weapon. It is a rack stock M14 rifle mated to an enhanced aluminum billet stock, Mark 4 tactical scope, and cantilever mount. With its new adjustable buttstock, cheek rest and M4-style pistol grip, the rifle is effective in close quarters combat and in the Squad Designated Marksman role. The EBR can be returned to its original configuration with no permanent modifications.

Five thousand M14 EBRs were reconfigured and assembled at TACOM Lifecycle Management Command (LCMC) at Rock Island Arsenal in response to Operational Need Statements requesting a longer range capability. The upgraded weapons are currently in service with select Army units.

Caliber: 7.62mm

Weight: 14.9 pounds (empty); 16.6 pounds (with loaded magazine)

Barrel Length: 22 inches

Maximum effective range: 600-800 meters (shooter dependent)





M9 Pistol

MISSION

Enhances Soldier lethality, survivability, and situational awareness in close combat situations via an improved pistol with rail attachment capabilities.

The **M9 Pistol** is a semi-automatic, double-action pistol that is lighter and safer than its predecessors. The M9 is carried by crew served weapon crewmen and others who have a personal defense requirement, such as law enforcement personnel, unit leaders, and aviators. It replaces the M1911A1 .45 caliber pistol and the .38 caliber revolver.

The **M9 Pistol Rail System** allows attachment of an Integrated Laser White Light Pointer (ILWLP) to the M9 Pistol, providing a tactical advantage in close combat operations. The ILWLP has resulted in increased lethality and survivability for Special Forces Soldiers and military police.

Caliber: 9mm

Weight: 40.9 ounces with loaded 15-round magazine; 33.9 ounces with empty magazine

Length: 8.5 inches





M16/M4 Magazine

MISSION

Provides Soldiers with M16 Rifles, M4 Carbines, and M249 Squad Automatic Weapons (SAWs) reliable, quick-change, 30-round capacity ammunition feed equipment.

The **M16/M4 Magazine** feeds ammunition to the M16, M4, and M249. The magazines are durable and may be reloaded repeatedly throughout their life cycle.

A new version of this magazine was introduced in late 2009. It provides improved reliability by incorporating a revised spring and follower design. It is readily identifiable by the tan color of the follower. Seven improved magazines are being free-issued for every Army M4 Carbine and M16 Rifle.

Weight empty: 4 ounces

Weight loaded: 1.06 pounds

Capacity: 30 rounds



Improved M16/M4 Magazines are identifiable with the tan follower compared to the green or black followers of older magazines.



M68 Close Combat Optic (CCO)

MISSION

Provides the Soldier armed with an M16 series rifle or M4 Carbine with a robust precision electronic optical red dot sight for use with both eyes open to improve effectiveness.

The **M68 Close Combat Optic (CCO)** is a red dot aiming device that enhances target acquisition speed, allowing Soldiers to engage targets up to 300 meters with both eyes open to maintain situational awareness. The sight has no magnification and can be used with all current night vision enhancements.

Improvements to the sight protect the inner tube and prevent damage in the field. A new LED improves battery life up to 30 times and increases the number of brightness positions. The redesigned battery compartment accommodates standard AA batteries and minimizes the risk of electronic failure.

Additional optics information is available online for individuals with Army Knowledge Online access. PM Individual Weapons – Optics has a new website that features operating instructions, training information, repair procedures, contact information and more. Visit: <http://optics.pica.army.mil>.

Weight: 14.4 ounces (M16A4/M4 configuration); 14.1 ounces (M16A2 configuration with auxiliary mounting rail)

Length: 5.3 inches

Magnification: none





**M68 Close Combat Optic
(CCO) | PEO Soldier
Portfolio FY2011**

M150 Rifle Combat Optic (RCO)

MISSION

Provides optical enhancements that increase the probability of a first-round hit at distances of up to 600 meters.

The **M150 Rifle Combat Optic (RCO)** is a rugged, battery-free 4x magnified optic that provides full mission profile optical capability for use on M4/M16/M249 weapon systems. Enhanced capabilities provided by the M150 RCO include range estimation, which, along with the bullet drop compensated reticle, provides accurate target engagements out to 800 meters for trained operators. The RCO provides greatly enhanced target identification over non-magnified views.

From reflexive fire in close quarter battle scenarios to long-range engagement and rapid transitioning in between, the M150 RCO provides trained operators with an increased first-round hit probability.

Additional optics information is available online for individuals with Army Knowledge Online access. PM Individual Weapons – Optics has a new website that features operating instructions, training information, repair procedures, contact information and more. Visit: <http://optics.pica.army.mil>.

Weight: 16.2 ounces

Length: 7.3 inches

Magnification: 4x





**M150 Rifle Combat Optic
(RCO) | PEO Soldier
Portfolio FY2011**

Close Quarters Battle Kit (CQB Kit)

MISSION

Provides accessories for the M4 Carbine and M16 Rifle that increase Soldier lethality and survivability.

The **Close Quarters Battle Kit (CQB Kit)** provides several low-cost, commercial off-the-shelf accessories for the M4 Carbine and M16 Rifle. The need for these items was identified by Soldiers during Operation Enduring Freedom, by the Joint Readiness Training Center Muddy Boots Council, by after-action reports, and by the Rapid Fielding Initiative.

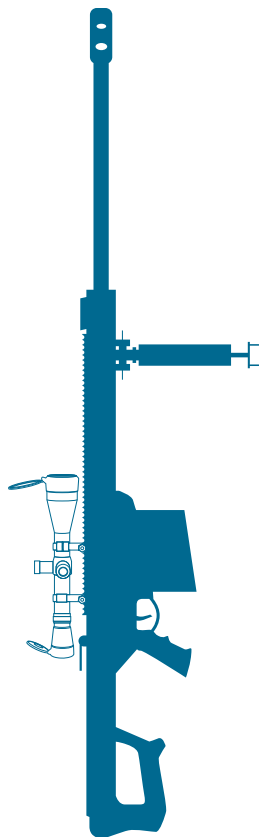
The CQB Kit includes the following:

- Multi-magazine holder with storage pouch and dust cover
- Forward rail bracket
- Squad designated marksman bipod
- Forward grip/bipod
- Improved weapons cleaning kit
- Tactical sling





Individual Weapons Future Initiatives



FUTURE ENHANCED SNIPER SYSTEMS

Several initiatives are planned to enable snipers to go the distance with more precision and greater lethality.

Precision Sniper Rifle

Requirements are currently being formulated for the Army's Precision Sniper Rifle (PSR), a highly accurate weapon system employing new ammunition that nearly doubles the effective range of anti-personnel sniper engagements compared with today's 7.62mm systems. The PSR is intended to fill the gap between longer distance .50 caliber anti-materiel sniper rifles that lack the precision of anti-personnel weapons like the M110 Semi-Automatic Sniper System (SASS) and the M24 Sniper Weapon System.

System Upgrades

Improvements are being planned for the M107 Semi-Automatic Long Range Sniper Rifle in terms of reducing its weight, incorporating a suppressor, and providing a protective exterior coating. Likewise, plans are being made to outfit the M110 SASS with a collapsible buttstock to make it more ergonomically functional in close quarter engagements.

Improved Optics

Optics enhancements range from an improved stadia reticle for sniper scopes to incorporating sophisticated laser rangefinders with electronic DOPE (Data On Previous Engagement) databases. For instance, one improvement will replace the outdated and calculation-intensive Mil-Dot range estimation reticles with a modern stadia reticle offering rapid estimation by fitting targets within graduated ranging overlays.

Fire Control Solutions

Fire control systems allow snipers to quickly and accurately acquire targets and calculate a near-instantaneous ballistic solution, allowing the sniper to place the system on target and confidently send the round.

Two such systems include the Defense Advanced Research Projects Agency's (DARPA) "One Shot" and "EXACTO" systems. The One Shot program will provide snipers with a technically advanced spotting scope capable of calculating cumulative wind effects to target and providing an accurate, adjusted ballistic aimpoint to the shooter. The EXACTO program is focused on developing a spotting scope-based target acquisition and guidance system that would steer maneuverable .50 caliber sniper bullets directly to a target. These DARPA programs seek to push cutting-edge technologies to increase operational range and hit probability of sniper systems.

Maturity of these technologies and transition to the field is scheduled to occur over the next four years.

THE DUAL PATH STRATEGY FOR THE NEXT GENERATION OF ARMY SERVICE RIFLES

Program Executive Office Soldier is currently pursuing a “dual path” strategy that will result in significant changes to the one system that is critical to all Soldiers—their standard issue service rifle. The dual path approach consists of the continuous improvement program for the M4 Carbine, paired with a full and open carbine competition. The results of these two efforts will provide Soldiers with enhanced battle rifles that are even more effective, reliable and accurate than the current fleet of 1.1 million M16/M4 weapon systems.

The intent of the dual path strategy is to allow the Army to continue its practice of upgrading the combat-proven M4 while simultaneously challenging industry to develop the next generation carbine. With nearly 500,000 M4s in the Army inventory, it is critical to strengthen the M4 platform while the Army invests the time necessary to properly develop, test and field a new weapon system. The Army has already made more than 60 refinements to the current M4 Carbine since its introduction and, not surprisingly, 94 percent of Soldiers rate the M4 as an effective weapon system in post-combat surveys.



M4 IMPROVEMENTS

The first path is the improvement plan for the M4, which is broken into three phases. For Phase I, the Army will purchase 25,000 improved M4A1 Carbines with ambidextrous fire control assemblies (FCA) and issue solicitations for kits to convert up to 65,000 fielded M4s into M4A1s with new FCAs. Compared to the M4, the M4A1 has a heavier barrel and is fully automatic, improvements that deliver greater sustained rates of fire. Phase II improvements will compete forward rail assemblies, bolts and bolt carrier assemblies to increase accessory integration while enhancing durability. Phase III will evaluate commercially available operating systems against the performance of the M4's current gas impingement system.

CARBINE COMPETITION

The second path is the carbine competition, which has been directed by the Secretary of the Army. In support of this directive, the Army has developed a new requirements document and has set aside funds to search for a new carbine that can outperform the current M16 and M4 series weapon systems.

The new carbine will provide improved features such as fully ambidextrous controls, semi- and full-automatic fire, and accurate and reliable firepower. In addition, integrated rails will accept accessories that currently attach to MIL-STD 1913 rails. The new carbine will be capable of firing the family of U.S. Standard Type Classified rounds or non-standard ammunition provided that any new caliber will provide for an ammunition family with the same capabilities as the current 5.56mm family of ammunition.

MODULAR HANDGUN SYSTEM (MHS)

The U.S. Army is currently adopting requirements for the Modular Handgun System (MHS) that will initiate a handgun competition to replace the M9 Pistol. The requirement for the new pistol originated with the Air Force and has previously received Joint Requirements Oversight Council (JROC) validation. The Army requires the MHS to be more effective, accurate, and reliable than the M9 Pistol, which has been the Army's standard sidearm since 1986.

The MHS requirement calls for a non-caliber specific weapon with modular features to allow for the adaption of different fire control devices, pistol grips, and alternate magazine options. The weapon will fit various hand sizes and will mount targeting enablers using MIL-STD-1913 rails. The new weapon will incorporate detection avoidance by having a non-reflective neutral color and will be operable with a sound and flash suppression kit in place.

The MHS Program will select a commercial off-the-shelf handgun in FY11–12. Testing will be completed by FY13 and Type Classification is expected in FY14. The MHS will replace the M9 Pistol on a one-for-one basis.



“The good thing about the CROWS system is it has the ability to be really accurate once you have a good zero for it. With single shot or burst or fully auto, it can engage accurately well beyond what a normal weapons system can do just mounted on a truck with a Soldier behind it. It can shoot accurately out to a thousand meters to something the size of a window or door.”

— **SGT Christopher Shupe**

PRODUCT MANAGER CREW SERVED WEAPONS (PM CSW)

PM CSW is responsible for current and future light and heavy machine guns, grenade launchers, related target acquisition/fire control products, and remote weapons systems.



The **XM153 Common Remotely Operated Weapon Station (CROWS)** enables Soldiers to acquire and engage targets while protected inside an armored vehicle.



The **M240L 7.62mm Medium Machine Gun (Light)** reduces Soldier combat load by decreasing the weight of the M240B without compromising performance.

XM153 Common Remotely Operated Weapon Station (CROWS)

MISSION

Enables Soldiers to acquire and engage targets while protected inside an armored vehicle.

The **Common Remotely Operated Weapon Station (CROWS)** is a stabilized mount that contains a sensor suite and fire control software, allowing on-the-move target acquisition and first-burst target engagement. Capable of target engagement under day and night conditions, the CROWS sensor suite includes a daytime video camera, thermal camera, and laser rangefinder. CROWS is designed to mount on any tactical vehicle and supports the MK19 Grenade Machine Gun, .50 Caliber M2 Machine Gun, M240B Machine Gun, and M249 Squad Automatic Weapon.

CROWS also features programmable target reference points for multiple locations, programmable sector surveillance scanning, automatic target ballistic lead, automatic target tracking, and programmable no-fire zones.

Potential enhancements include integration of other weapons and escalation-of-force systems.



**XM153 Common Remotely
Operated Weapon Station
(CROWS) | PEO Soldier
Portfolio FY2011**

MK19 Grenade Machine Gun

MISSION

Provides offensive and defensive Soldier support via a tripod- or vehicle-mounted grenade machine gun.

The **MK19 Grenade Machine Gun** supports the Soldier in offensive and defensive roles by delivering a heavy volume of accurate and continuous firepower against enemy personnel and lightly armored vehicles. The MK19 can be mounted on a tripod or on multiple vehicle platforms and is the primary suppressive weapon for combat support and combat service support units. The weapon can be used to protect motor movements, assembly areas, and supply trains in bivouac.

The MK19 Grenade Machine Gun can defend against hovering rotary-wing aircraft, destroy lightly armored vehicles, fire on suspected enemy positions, and provide high-volume fire into an engagement area and indirect fires from hidden positions. The system increases the capability of U.S. forces to defeat opposing armored, mechanized, and infantry forces with high-explosive, dual-purpose ammunition. The MK19's point target effective range is 1,500 meters and the maximum area target effective range is 2,212 meters, with a cyclic firing rate of approximately 350 rounds per minute.

Caliber: 40mm

Weight: 77.6 pounds without mount or tripod

Length: 43.1 inches





M2 .50 Caliber Machine Gun

MISSION

Improves Soldier effectiveness and lethality with a versatile, automatic weapon for offensive and defensive operations, in both ground- and vehicle-mounted roles.

The **M2 .50 Caliber Machine Gun** is automatic, belt-fed, recoil-operated, and air-cooled. It mounts on the M3 tripod and on most vehicles, while also serving as an anti-personnel and anti-aircraft weapon. It is highly effective against light armored vehicles, low- and slow-flying aircraft, and small boats. The M2 provides automatic weapon suppressive fire for offensive and defensive purposes. It is capable of single-shot (ground M2 Machine Gun) and automatic fire.

Caliber: .50 caliber (12.7mm)

Weight: 84 pounds without traverse and elevation or tripod

Barrel weight: 26 pounds

Length: 65.13 inches

Maximum effective range: 1,830 meters





M2E2 Quick Change Barrel (QCB) Kit

MISSION

Provides modifications for increased lethality and survivability over the standard M2 Heavy Barrel Machine Gun.

The **M2E2 Quick Change Barrel (QCB) Kit** is an enhancement to the M2 .50 Caliber Machine Gun offering Soldiers increased performance as well as new features and design improvements that make it easier and safer to use.

Upgrades such as the QCB system, fixed headspace and timing configuration, flash hider, and removable carrying handle will increase the performance of the battle-proven M2 and can be fitted to existing M2HB weapons.

The QCB Kit, when installed on the M2 (to be renamed the M2A1 once it is type-classified), speeds target engagement and improves survivability and safety by reducing the time required to change the barrel and eliminating the timely procedure of setting headspace. The flash hider reduces muzzle flash, making the M2 less detectable in darkness.



Product Manager
Crew Served Weapons
Project Manager
Soldier Weapons



XM806 Lightweight .50 Caliber Machine Gun

MISSION

Provides vehicle and weapon squads with a lightweight .50 caliber weapon system that is easily dismounted from vehicles for ground mount applications.

The **XM806 Lightweight .50 Caliber Machine Gun** weighs approximately one-half as a similarly configured M2 and reduces the recoil by at least 60 percent. This lighter weight permits easy dismount and ground transportability when necessary, and the reduced recoil permits the mounting of an optic for greater lethality through increased first-burst accuracy and control.

The XM806 can fire all of the .50 caliber service ammunition in the current inventory and is capable of defeating personnel and lightly armored targets out to 2,000 meters. It is designed to augment the M2 .50 caliber machine gun, but can also be used to replace the M2 in select operational locations. Safety is improved through a manual safety and a quick change barrel that eliminates the requirement for the operator to adjust headspace and timing.

The weapon is ideal for light infantry and special operations forces, as well as for vehicles demanding more lethality but lighter weight.

Caliber: .50 caliber (12.7mm)

Weight: 45 pounds; 70 pounds with ground mount (eventual requirement of 65 pounds)

Length: 56.7 inches charged, 64.5 inches uncharged

Effective range: 2,000 meters





**XM806 Lightweight .50
Caliber Machine Gun | PEO
Soldier Portfolio FY2011**

XM205 Lightweight Heavy Machine Gun Tripod

MISSION

Provides a lightweight tripod for the dismounted M2 .50 Caliber Machine Gun and MK19 Grenade Machine Gun, enabling a quicker, more accurate target engagement.

The **XM205 Lightweight Heavy Machine Gun Tripod** is a strong alternative to the current M3 tripod. The Soldier will experience 30 percent less weight burden with the XM205 than with the standard 44-pound M3 Tripod—50.2 pounds with traverse and elevation (T&E) mechanism and pintle, and will be able to take advantage of the enhanced tripod’s integrated T&E mechanism.

The XM205 collapses to less than 50 percent of deployed height and width and will not require adapters. The tripod takes advantage of the full range and versatility of the M2 and MK19 and allows for consistent elevation and depression throughout the full range of motion. The integrated T&E can be operated with one hand.



M240B 7.62mm Medium Machine Gun

MISSION

Provides significant, reliable, and lethal medium support fire for ground units such as infantry, armor, field artillery, and combat engineers.

The **M240B 7.62mm Medium Machine Gun** is a variant of the M240 mounted on Bradley Fighting Vehicles and Abrams tanks. It has been reconfigured for ground applications with buttstock, bipod, iron sights, and forward rail assemblies. The M240B has a maximum effective range of 1,800 meters, a cyclic rate of fire of 650 rounds per minute, and a muzzle velocity of 2,800 feet per second.

Caliber: 7.62mm

Weight: 27.2 pounds

Length: 47.5 inches

Maximum effective range: 1,800 meters





**M240B 7.62mm Medium
Machine Gun** | PEO Soldier
Portfolio FY2011

M240B/L Accessories

MISSION

Enhances the capabilities of the M240B/L Medium Machine Gun by improving mobility, reliability, and survivability.

The **M240B Short Barrel** reduces the length of the standard M240B barrel by four inches and the weight by 1.7 pounds, while maintaining accurate fire at extended ranges. The shorter barrel improves mobility in military operations on urban terrain environments.

The **M240B Collapsible Buttstock** will improve weapon portability and Soldier survivability. It consists of a completely new in-house design. The Collapsible Buttstock will meet the same requirements as the standard buttstock while offering the ability to collapse to various positions without degradation of weapon function.

The **M240B Combat Ammo Pack** provides direct attachment of a lightweight ammunition magazine/container to the M240B Medium Machine Gun. The ammo pack holds 50 rounds of linked 7.62mm ammunition and protects the linked belt from dirt and debris. The ammo pack also allows better movement of the M240B during initial insertions and engagements.

The **M240B Adjustable Bipod** provides improved stability on uneven terrain and improved accuracy on hard surfaces by allowing the Soldier to adjust the legs independently.



M240B Combat Ammo Pack



M240B Short Barrel



M240B Collapsible Buttock



M240B Adjustable Bipod

M240L 7.62mm Medium Machine Gun (Light)

MISSION

Reduces Soldier combat load by decreasing the weight of the M240B without compromising performance.

The **M240L 7.62mm Medium Machine Gun (Light)** incorporates titanium construction and alternative manufacturing methods for fabricating major M240B components to achieve significant weight savings. These improvements reduce the Soldier's combat load while allowing easier handling and movement of the weapon. The M240L short barrel variant is 21.8 pounds, 5.4 pounds lighter than the M240B.

The M240L is the program-of-record solution to reducing the weight of the M240B. The M240L meets all of the reliability and operational characteristics of the M240B. It is rugged and reliable and has a minimum 50,000-round receiver life.

Caliber: 7.62mm

Weight: 22.3 pounds; 21.8 pounds with short barrel

Length: 48.5 inches (44.5 inches with short barrel)

Maximum effective range: 1,800 meters (area target)





**M240L 7.62mm Medium
Machine Gun (Light) | PEO
Soldier Portfolio FY2011**

M240H 7.62mm Machine Gun (Aviation Version)

MISSION

Improves the self-protection capabilities of Black Hawk and Chinook helicopter crews by replacing the aging M60D Machine Gun.

The **M240H 7.62mm Machine Gun (Aviation Version)** is designed for aviation use but is removable for employment in a ground role. The equipment delivers two minutes of continuous suppressive fire and demonstrates reliability equal to the M240B.

Caliber: 7.62mm

Weight: 27.2 pounds

Length: 47.5 inches

Maximum effective range: 1,800 meters





**M240H 7.62mm Machine
Gun (Aviation Version) | PE0**
Soldier Portfolio FY2011

MK48 MOD 0/1, 7.62mm Lightweight Machine Gun

MISSION

Provides suppressive fire, through a compact and lightweight machine gun, at extended ranges for special operations forces.

The **MK48 MOD 0/1, 7.62mm Lightweight Machine Gun** is a fire team automatic weapon that provides suppressive fire at extended ranges. More than 30 percent lighter than the M240B, the MK48 was designed for the United States Special Operations Command as a compact and lightweight assault weapon solution. It features improved receiver pins, a new gas block cap, and a vented hand guard with MIL-STD 1913 rails. The enhanced heat shield design helps improve sustained fire performance, and the carry handle mounted directly to the barrel allows for quick barrel changes.

The MK48 is an interim solution to reducing the Soldier's load in Afghanistan pending the initial fielding of the M240L.

The MK48 is fielded with a new combination tool for field maintenance along with a spare barrel.

Caliber: 7.62mm

Weight: 18.26 pounds empty

Length: 39.75 inches

Maximum effective range: 800 meters





MK48 MOD 0/1, 7.62mm
Lightweight Machine Gun |
PEO Soldier Portfolio FY2011

M249 Squad Automatic Weapon (SAW)

MISSION

Fills the automatic rifle role in infantry squads and provides light machine gun capabilities in combat service and combat service support units.

The **M249 Squad Automatic Weapon (SAW)** replaces the M16A1 Automatic Rifle at the squad level, as well as some M60 multipurpose machine guns in non-infantry units. It provides squad-level fire support by laying down a base of sustained fire and is routinely used in both mounted and dismounted configurations. The M249 delivers greater range and rates of fire than the M16 or M4.

A collapsible buttstock allows shoulder firing in the extended and collapsed positions and improves weapons control when fired in confined spaces. A new short barrel allows for improved egress and maneuver in close quarter combat. An improved bipod provides Soldiers with increased reliability and weapon accuracy, including on uneven terrain.

The M249 features a hammer-forged steel barrel for enhanced accuracy and long life as well as a hard chrome-plated bore and chamber for greater corrosion resistance.

Caliber: 5.56mm

Weight: 17-18.6 pounds; 200-round hard pack magazine, 6.71 pounds

Length: Extended, 40.75 inches

Barrel Length: 20.5 inches (standard); 14.75 inches (short barrel)

Maximum Effective Range: 600 meters point; 800 meters area target; 1,000 meters area target (suppressive)





M249 Squad Automatic Weapon (SAW)

Accessories

MISSION

Provides the Soldier using the M249 Squad Automatic Weapon with accessories for enhanced performance.

The **M249 Squad Automatic Weapon (SAW) Collapsible Buttstock** allows shoulder firing in the extended and collapsed positions. It maintains a vertical buttstock position for full interface with the operator's shoulder at all times and provides intermediate, locking firing positions, improving weapon control when fired in confined spaces such as military operations on urban terrain (MOUT). The buttstock allows ease of ingress/egress from vehicles and reduces storage space requirements. A redesigned version, which provides additional adjustment capability, is in production.

The **M249 SAW Improved Bipod** enhances the design of the existing bipod to improve the performance of the M249 weapon, providing the Soldier with increased reliability and weapon accuracy. The bipod legs can be adjusted to different heights, resulting in improved stability on uneven terrain. M249s are currently being delivered with the Improved Bipod while additional assets are being distributed in conjunction with Rapid Fielding Initiative (RFI) fielding to retrofit fielded weapons.

The **M249 SAW 200-Round Soft Pack** program is a follow-on effort to the soft packs initially provided under the RFI. Based on requests from the field, RFI fielded a 200-round soft pack for the M249 that was designed to improve weapon retention and reduce the noise signature associated with the standard plastic ammunition container. An initial production option awarded in August 2008 for 9,000 M249 200-Round Soft Packs fulfilled requirements for the U.S. government to obtain government purpose rights for competitive procurement.

The **M249 SAW Short Barrel** provides the M249 SAW operator in the automatic rifle role a shorter, lighter weapon for improved mobility in confined spaces with little reduction in accuracy at normal combat ranges. Operational use and training is the same as the standard barrel length M249 SAW. The short barrel improves MOUT, airborne/air assault maneuverability, and jump operations. The off-the-shelf short barrel is 4.5 inches shorter than the standard barrel and shortens the weapon by more than 10 inches when combined with the collapsible buttstock. The short barrel is currently under production and is being fielded through the RFI in support of current operations.



M249 SAW 200-Round
Soft Pack



M249 SAW Short Barrel



M249 SAW Collapsible
Buttstock



M249 SAW Improved Bipod

M145 Machine Gun Optic (MGO)

MISSION

Provides a telescopic sight for the M240B Medium Machine Gun, enabling better target detection, identification, and hit probability.

The **M145 Machine Gun Optic (MGO)** (with anti-reflective device) provides machine gunners with the capability to detect, identify, and engage targets at extended ranges. The 3.4x power magnification and wide field of view make this product configurable to mission profiles, operational modes, and environmental conditions. It fits on the M240B for infantry, armored cavalry, Special Forces, and combat engineer units.

Additional optics information is available online for individuals with Army Knowledge Online access. PM Individual Weapons – Optics has a new website that features operating instructions, training information, repair procedures, contact information and more. Visit: <http://optics.pica.army.mil>.

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M192 Lightweight Ground Mount for Machine Guns

MISSION

Provides a lighter-weight, low-profile mounting platform for the M249 and M240B/L for controlled, sustained, and accurate fire at extended ranges.

The **M192 Lightweight Ground Mount for Machine Guns** is an improved-capability ground mount that replaces the M122A1 Tripod. The M192 is a compact and collapsible ground mount that reduces the Soldier's combat load and improves Soldier mobility. It features a lower profile and weighs approximately six pounds less than the M122A1 Tripod it replaced. The mount provides an integral traversing and elevation (T&E) mechanism that allows for quicker, more accurate target engagement and allows for one-handed operation. This T&E mechanism eliminates the user's need for adaptors for separate machine gun pintles and T&E devices.

Other features include a traverse limit stop, a built-in spent case deflector, and the ability to fold up into the spare barrel bag. The mount is constructed with corrosion-resistant materials to withstand harsher environments. The M192 Tripod is part of the Rapid Fielding Initiative kit.

Weight: 11.5 pounds

Length: 24 inches (stowed); 31.75 inches (legs extended)

Width: 11.5 inches (stowed)

Height: 10.3 inches (on hard surface)





M24 Miniature Binoculars

MISSION

Enhances surveillance and battle image assessment with compact binoculars that fit in the pocket of U.S. Army combat uniforms.

M24 Miniature Binoculars have 7x optics that deliver brilliantly focused and steady imagery. They offer the same high-quality resolution and magnification as the Army's standard M22 Binoculars. However, at 2.68 inches long, 4.92 inches wide, 5.31 inches tall, and only 1.26 pounds, the M24 Miniature Binoculars are 80 percent smaller and 50 percent lighter than the M22 Binoculars series.



Product Manager
Crew Served Weapons
Project Manager
Soldier Weapons



M25 Stabilized Binoculars

MISSION

Enhances surveillance and battle image assessment with high-powered, stabilized binoculars.

M25 Stabilized Binoculars have 14x optics that deliver brilliantly focused and steady imagery regardless of movement. In day mode, the binoculars are direct-view optical devices; for night missions the binoculars offer Optional Interchangeable Image Intensifier GEN III eyepieces. The equipment can be handheld or mounted on a tripod, and can be powered by two AA batteries or vehicle power units via adapter cables. Broadband multilayer coating on the optics enables greater than 90 percent transmission of light.



Product Manager
Crew Served Weapons
Project Manager
Soldier Weapons



Close Combat Mission Capability Kit (CCMCK) System

MISSION

Permits the Soldier to fire 5.56mm (linked/unlinked) Man-Marking ammunition and 9mm Man-Marking ammunition in assigned weapons during force-on-force training.

The **M4 Carbine/M16 Rifle Conversion Adapter Kit** is designed for utmost safety, in-service reliability, and maintainability. The kit is easy to install with a simple exchange of the bolt and adapts the host weapon to fire unlinked 5.56mm M1042 Man-Marking ammunition with the feel and function of live ammunition. The kit is designed and engineered with fail-safe measures to prevent the discharge of a standard “live” round.

The **M249 Squad Automatic Weapon (SAW) Conversion Adapter Kit** adapts the host weapon to fire 5.56mm M1071 Linked Man-Marking rounds. The kit is also designed and engineered for utmost safety, in-service reliability, and maintainability. The kit is easy to install with the exchange of the bolt and slide assembly and is expertly engineered with fail-safe measures to prevent the discharge of a standard “live” round.

The **M9 and M11 Pistol Barrel Adapters** are designed for firing 9mm M1041 Man-Marking cartridges. The barrel bore is off center at the muzzle. Both the barrel and slide are unlocked to ensure reliable functioning of the weapon. To compensate for this, in combination with the low muzzle velocity of the projectile, the barrel bore is canted upward from the chamber to the muzzle to maintain aiming accuracy.





M1041/M1042/M1071 Close Combat Mission Capability Kit Man-Marker Rounds



Protective Mask



M9 and M11 Pistol Barrel Adapters



M4 Carbine/M16 Rifle Conversion Adapter Kit



M249 Squad Automatic Weapon (SAW)
Conversion Adapter Kit



Military Combat Eye Protection Goggles are
required to be worn with the system

Crew Served Weapons Future Initiatives

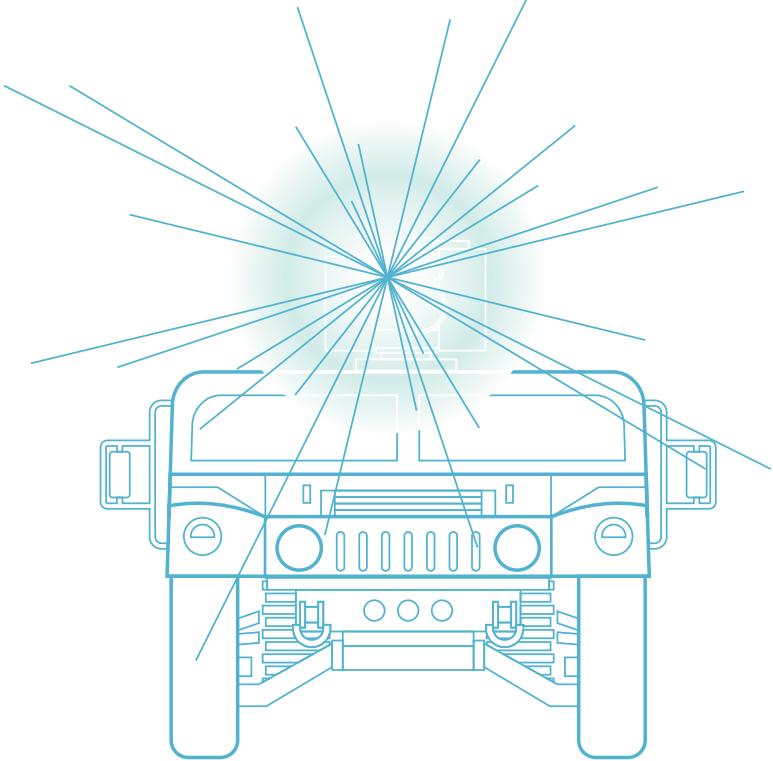
GREEN LASER ESCALATION OF FORCE KITS

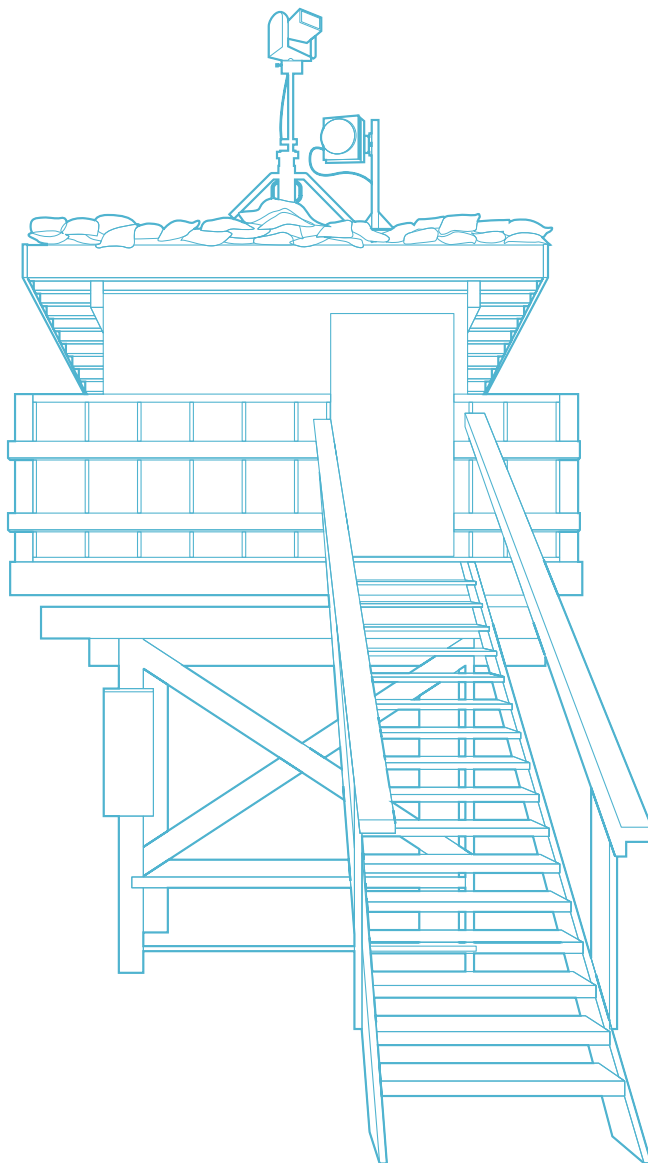
PM Soldier Weapons is currently conducting operational assessments on CROWS-mounted Green Laser Escalation of Force kits. The non-lethal green-light laser offers Soldiers an interim step in the escalation of force when conducting daily operations.

The system emits a wide band of green light that temporarily disrupts a person's vision so that driving

a vehicle or aiming a weapon becomes difficult if not impossible. One application would be to warn civilians away from checkpoints and other areas where their safety is at risk. At closer distances, the lasers provide an immediate, non-lethal capability to deter aggressive actions.

Select units have been testing the systems in theater. Soldier input on system performance and the impact on operations will be incorporated into future refinements.





PROTECTOR LITE STATIC PLATFORM SYSTEM

With thousands of CROWS systems delivering enhanced capability, lethality, and Soldier protection in theater, Soldiers have begun to look for more ways to leverage remote weapons station (RWS) technology. In particular, Soldiers began submitting requests through the Rapid Equipping Force (REF) for a quick turnaround RWS solution that would enable them to conduct surveillance and engage threats from inside the protection of guard towers.

To meet this demand, engineers at the Armament, Research Development & Engineering Center (ARDEC) at Picatinny Arsenal have begun working to retrofit an earlier CROWS variant known as the “Protector Lite.” The Protector Lite Static Platform System will be designed to provide Soldiers the ability to accurately engage the enemy with either M240B or M249 machine guns from elevated positions out to a range of 500-1,000 meters. The systems also come with daytime video and thermal surveillance cameras.

ARDEC engineers are designing the Protector Lite Static Platform System so that it can be universally mounted to a wide variety of guard tower designs. The units will also be self-sufficient, with organic mount adapters, generators, and power supplies.

PEO Soldier Online

Find more information on our products, and keep up to date with the latest PEO Soldier developments.



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Glossary

Acquisition Categories (ACAT)

Categories established to facilitate decentralized decision-making and execution and compliance with statutorily imposed requirements. The categories determine the level of review, decision authority, and applicable procedures. The ACATs are listed below:

ACAT I programs are Major Defense Authority Programs (MDAPs [see also Major Defense Acquisition Program]) or programs designated ACAT I by the Milestone Decision Authority (MDA [see also Milestone Decision Authority]).

Dollar value: estimated by the Under Secretary of Defense (Acquisition and Technology) (USD [A&T]) to require an eventual total expenditure for Research, Development, Test and Evaluation (RDT&E) of more than \$365 million in Fiscal Year (FY) 2000 constant dollars or, for Procurement, of more than \$2.190 billion in FY 2000 constant dollars. ACAT I programs have two sub-categories:

1. ACAT ID for which the MDA is USD (AT&L). The “D” refers to the Defense Acquisition Board (DAB), which advises the USD (AT&L) at major decision points.
2. ACAT IC for which the MDA is the DoD Component Head or, if delegated, the DoD Component Acquisition Executive (CAE). The “C” refers to Component. The USD (A&T) designates programs as ACATID or ACAT IC.

ACAT IA programs are Major Automated Information Systems (MAISs) or programs designated by the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (ASD [CE3I]) to be ACAT IA. A MAIS is an Automated Information System (AIS) program that is:

1. Designated by the ASD(C3I) as an MAIS; or
2. Estimated to exceed: \$32 million in FY 2000 constant dollars for all expenditures, for all increments, regardless of the appropriation or fund source, directly related to the AIS definition, design, development, and deployment, and incurred in any single fiscal year; or \$126 million in FY 2000 constant dollars for all expenditures, for all increments, regardless of the appropriation or fund source, directly related to the AIS definition,

design, development, and deployment, and incurred from the beginning of the Materiel Solution Analysis Phase through deployment at all sites; or \$378 million in FY 2000 constant dollars for all expenditures, for all increments, regardless of the appropriation or fund source, directly related to the AIS definition, design, development, deployment, operations and maintenance, and incurred from the beginning of the Materiel Solution Analysis Phase through sustainment for the estimated useful life of the system.

ACAT IA programs have two sub-categories:

1. ACAT IAM for which the MDA is the Chief Information Officer (CIO) of the DoD, the ASD(C3I). The M (in ACAT IAM) refers to Major Automated Information System Review Council (MAISRC). (Change 4, 5000.2-R)
2. ACAT IAC for which the DoD CIO has delegated MDA to the CAE or Component CIO. The C (in ACAT IAC) refers to Component.

ACAT II programs are defined as those acquisition programs that do not meet the criteria for an ACAT I program but do meet the criteria for a major system, or are programs designated ACAT II by the MDA.

ACAT III programs are defined as those acquisition programs that do not meet the criteria for ACAT I, ACAT IA, or an ACAT II. The MDA is designated by the CAE and shall be at the lowest appropriate level. This category includes less-than-major AISs.

Acquisition Phase

All the tasks and activities needed to bring a program to the next major milestone occur during an acquisition phase. Phases provide a logical means of progressively translating broadly stated mission needs into well-defined system-specific requirements and ultimately into operationally effective, suitable, and survivable systems.

Advanced Technology Demonstration (ATD)

Used to demonstrate the maturity and potential of advanced technologies for enhanced military operational capability or cost effectiveness, and

reduce technical risks and uncertainties at the relatively low costs of informal processes. ATDs are funded with Advanced Technology Development (ATD) funds.

Advanced Technology Development (ATD)

Budget Activity (BA) 3 within a Research, Development, Test and Evaluation (RDT&E) appropriation account that includes development of subsystems and components and efforts to integrate subsystems and components into system prototypes for field experiments and/or tests in a simulated environment. ATD also includes Concept and Technology Demonstrations (CTDs) of components and subsystems or system models. The models may be Form, Fit and Function (F3) prototypes or scaled models that serve the same demonstration purpose. Projects typically have a direct relevance to identified military needs. The result of these type efforts are proof of technological feasibility and assessment of subsystem and component operability and producibility rather than the development of hardware for Service use. Program Elements (PEs) funded under this BA typically involve pre-Milestone B efforts such as system concept demonstrations, joint and Service-specific experiments or technology demonstrations. Advanced Technology Demonstrations are funded with ATD funds. (DoD 7000.14-R)

Block Approach

See *Evolutionary Acquisition*.

Capability Development Document (CDD)

A document that captures the information necessary to develop a proposed program(s), normally using an evolutionary acquisition strategy. The CDD outlines an affordable increment of militarily useful, logistically supportable and technically mature capability. The CDD supports a Milestone B decision review. The CDD format is contained in CJCSM 3170.01. (CJCSI 3170.01C and CJCSM 3170.01)

Capability Production Document (CPD)

A document that addresses the production elements specific to a single increment of an acquisition program. The CPD must be validated and approved

before a Milestone C decision review. The refinement of performance attributes and Key Performance Parameters (KPPs) is the most significant difference between the CDD and CPD. The CPD format is contained in CJCSM 3170.01. (CJCSI 3170.01C and CJCSM 3170.01)

Commercial and Non-Developmental Items

Market research and analysis shall be conducted to determine the availability and suitability of existing commercial and non-developmental items prior to the commencement of a development effort, during the development effort, and prior to the preparation of any product description. For ACAT I and IA programs, while few commercial items meet requirements at a system level, numerous commercial components, processes, and practices have application to DoD systems.

Commercial Off-The-Shelf (COTS)

Commercial items that require no unique government modifications or maintenance over the life cycle of the product to meet the needs of the procuring agency.

Concept and Technology Development

Concept and technology development refers to the development of a materiel solution to an identified, validated need. During this phase, the Mission Needs Statement (MNS) is approved, technology issues are considered, and possible alternatives are identified. In this phase, the initiation concept is approved, a lead component is designated, and exit criteria are established. The leader of the concept development team will work with the integrated test team to develop an evaluation strategy that describes how the capabilities will be evaluated once the system is developed.

Major components of this phase are Concept Exploration, Decision Review, and Component Advanced Development. Concept Exploration evaluates the feasibility of alternative concepts and assesses the merits of these concepts. This phase ends with a Decision Review, at which the preferred concept for the technologies that are available is selected. The Decision Review may also determine whether additional component development is necessary before key

technologies can enter System Development and Demonstration. Component Advanced Development occurs when the project leader has a concept for the needed capability, but does not yet know the system architecture. The project exits Component Advanced Development when system architecture has been developed and the component technology has been demonstrated in the relevant environment or the Milestone Decision Authority (MDA) decides to end this effort. This effort is intended to reduce risk on components that have only been demonstrated in a laboratory environment and to determine the appropriate set of subsystems to be integrated into a full system.

Concept Decision (CD)

First decision point of the Defense Acquisition Management Framework. It authorizes entry into the Concept Refinement (CR) phase. The principal document at this decision point is the Initial Capabilities Document (ICD), which also contains an approved plan for conducting an Analysis of Alternatives (AoA). A successful CD does not mean that a new acquisition program has been initiated since funding is normally limited to the CR phase that follows. (DoDI 5000.2) See Program Initiation.

Critical Design Review (CDR)

A multi-disciplined technical review to ensure that a system can proceed into fabrication, demonstration, and test and can meet stated performance requirements within cost, schedule, risk, and other system constraints. Generally this review assesses the system final design as captured in product specifications for each configuration item in the system's product baseline, and ensures that each configuration item in the product baseline has been captured in the detailed design documentation. Normally conducted during the System Development and Demonstration (SDD) phase. (Defense Acquisition Guidebook)

Developmental Test and Evaluation (DT&E)

DT&E shall identify potential operational and technological capabilities and limitations of the alternative concepts and design options being pursued; support the identification and description of design technical risks; and provide

data and analysis in support of the decision to certify the system ready for operational test and evaluation.

DODD 5000.01

DoD Directive 5000.01, “The Defense Acquisition System.”

DoDI 5000.02

DoD Instruction 5000.02, “Operation of the Defense Acquisition System.”

Down Select

To reduce the number of contractors working on a program by eliminating one or more for the next phase.

Engineering Change Proposal (ECP)

A proposal to the responsible authority recommending that a change to an original item of equipment be considered, and the design or engineering change be incorporated into the article to modify, add to, delete, or supersede original parts.

Evolutionary Acquisition (EA)

The preferred DoD strategy for rapid acquisition of mature technology for the user according to DoDI 5000.2. An evolutionary approach delivers capability in increments, recognizing up front the need for future capability improvements. There are two approaches to achieving an EA: Spiral Development and Incremental Development as noted below:

1. Spiral Development: In this process, a desired capability is identified, but the end-state requirements are not known at program initiation. Requirements are refined through demonstration, risk management and continuous user feedback. Each increment provides the best possible capability, but the requirements for future increments depend on user feedback and technology maturation. According to DoDD 5000.1, spiral development is the preferred process for executing an EA strategy.
2. Incremental Development: In this process, a desired capability is identified, an end-state requirement is known, and that requirement is met

over time by developing several increments, each dependent on available mature technology.

First Unit Equipped (FUE) Date

The scheduled date system or end item and its agreed upon support elements are issued to the designated Initial Operational Capability (IOC) unit and training specified in the new equipment training plan has been accomplished.

Fiscal Year (FY)

For the United States Government (USG), the period covering October 1 to September 30 (12 months).

Full Operational Capability (FOC)

The full attainment of the capability to employ effectively a weapon, item of equipment, or system of approved specific characteristics, which is manned and operated by a trained, equipped, and supported military unit or force.

Full-Rate Production (FRP)

Contracting for economic production quantities following stabilization of the system design and validation of the production process.

Initial Capabilities Document (ICD)

Documents the need for a materiel approach to a specific capability gap derived from an initial Analysis of Materiel Approaches (AMA) executed by the operational user and, as required, an independent analysis of materiel alternatives. The ICD defines the gap in terms of the functional area, the relevant range of military operations, desired effects and time. It also summarizes the results of Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities (DOTMLPF) analysis and describes why nonmaterial changes alone have been judged inadequate in fully providing the capability. (CJCSI 3170.01C)

Initial Operational Capability (IOC)

The first attainment of the capability to employ effectively a weapon, item of equipment, or system of approved specific characteristics with the appropriate

number, type, and mix of trained and equipped personnel necessary to operate, maintain, and support the system. It is normally defined in the Capability Development Document (CDD) and the Capability Production Document (CPD).

Initial Operational Test and Evaluation (IOT&E)

Dedicated Operational Test and Evaluation (OT&E) conducted on production, or production representative articles to determine whether systems are operationally effective and suitable, and that supports the decision to proceed Beyond Low-Rate Initial Production (BLRIP).

In-Process Review/Interim Program Review (IPR)

Review body for ACAT III programs. Convened at each formal milestone and at other critical points to evaluate status and make recommendations to the MDA.

Joint Requirements Oversight Council (JROC)

Assists the Chairman, Joint Chiefs of Staff (CJCS) in identifying and assessing the priority of joint military requirements (including existing systems and equipment) to meet the National Military Strategy (NMS). The Vice Chairman of the Joint Chiefs of Staff (VCJCS) chairs the Council and decides all matters before the Council. The permanent members include the Vice Chiefs of the U.S. Army (VCSA) and U.S. Air Force (VCSAF), the Vice Chief of Naval Operations (VCNO), and the Assistant Commandant of the Marine Corps (ACMC). The Council directly supports the Defense Acquisition Board (DAB) through the review, validation, and approval of key cost, schedule, and performance parameters at the start of the acquisition process, prior to each milestone review, or as requested by the Under Secretary of Defense (Acquisition, Technology, and Logistics) [USD(AT&L)].

Live Fire Test and Evaluation (LFT&E)

LFT&E must be conducted on a covered system, major munition program, missile program, or product improvement to a covered system, major munition program, or missile program before it can proceed Beyond Low-Rate Initial Production. A covered system is a vehicle, weapon platform, or conventional

weapon system that includes features designed to provide some degree of protection to users in combat and that is an ACATI or II program. Depending upon its intended use, a commercial or non-developmental item may be a covered system, or a part of a covered system. (Change 4, 5000.2-R) Systems requiring LFT&E may not proceed beyond low-rate initial production until realistic survivability or lethality testing is completed and the report required by statute is submitted to the prescribed congressional committees.

Low-Rate Initial Production (LRIP)

The objective of this activity is to produce the minimum quantity necessary to provide production-configured or representative articles for operational tests, establish an initial production base for the system and permit an orderly increase in the production rate for the system that is sufficient to lead to full-rate production upon successful completion of operational testing.

Major Automated Information System (MAIS) Acquisition Program

An AIS acquisition program that is (1) designated by ASD (C3I) as an MAIS, or (2) estimated to require program costs in any single year in excess of \$32 million in FY 2000 constant dollars, total program costs in excess of \$126 million in FY 2000 constant dollars, or total life-cycle costs in excess of \$378 million in FY 2000 constant dollars. MAISs do not include highly sensitive classified programs.

Major Defense Acquisition Program (MDAP)

An acquisition program that is not a highly sensitive classified program (as determined by the Secretary of Defense) and that is: (1) designated by the USD (A&T) as an MDAP, or (2) estimated by the USD (A&T) to require an eventual total expenditure for research, development, test and evaluation of more than \$365 million in FY 2000 constant dollars or, for procurement, of more than \$2.190 billion in FY 2000 constant dollars.

Milestone (MS)

The point at which a recommendation is made and approval sought regarding starting or continuing an acquisition program, i.e., proceeding to the next phase. Milestones established by DoDI 5000.2 are: MS A approves entry into

the Technology Development (TD) phase MS B approves entry into the System Development and Demonstration (SDD) phase MS C approves entry into the Production and Deployment (P&D) phase Also of note are the Concept Decision (CD) that approves entry into the Concept Refinement (CR) phase; the Design Readiness Review (DRR) that ends the System Integration (SI) effort and continues the SDD phase into the System Demonstration (SD) effort; and the Full Rate Production Decision Review (FRPDR) at the end of the Low Rate Initial Production (LRIP) effort of the P&D phase that authorizes Full Rate Production (FRP) and approves deployment of the system to the field or fleet.

Materiel Release Order*

An order issued by an accountable supply system manager (usually an inventory control point or accountable depot or stock point) directing a non-accountable activity (usually a storage site or materiel drop point) within the same supply distribution complex to release and ship materiel.

Milestone Decision Authority (MDA)

The individual designated in accordance with criteria established by the USD (A&T), or by the ASD (C3I) for AIS acquisition programs, to approve entry of an acquisition program into the next phase.

Modifications

Any modification that is of sufficient cost and complexity that it could itself qualify as an ACAT I or ACAT IA program shall be considered for management purposes as a separate acquisition effort. Modifications that do not cross the ACAT I or IA threshold shall be considered part of the program being modified, unless the program is no longer in production. In that case, the modification shall be considered a separate acquisition effort. (Added from 5000.2-R)

New Start

An item or effort appearing in the President's Budget (PB) for the first time; an item or effort that was previously funded in basic or applied research and is transitioned to Advanced Technology Development (ATD) or engineering development; or an item or effort transitioning into procurement appearing in the PB for the first time in the investment area. Often confused with program

initiation, an acquisition term that describes the milestone decision that initiates an acquisition program.

Non-Developmental Item (NDI)

An NDI is any previously developed item of supply used exclusively for government purposes by a Federal Agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement or any item described above that requires only minor modifications or modifications of the type customarily available in the commercial marketplace in order to meet the requirements of the processing department or agency.

Off-the-Shelf

Procurement of existing systems or equipment without a Research, Development, Test and Evaluation (RDT&E) program or with minor development to make the system suitable for DoD needs. May be commercial system/equipment or one already in DoD inventory. See Commercial and Non-Developmental Item.

Operational Capability

The measure of the results of the mission, given the condition of the systems during the mission (dependability).

Operational Test and Evaluation (OT&E)

OT&E shall be structured to determine the operational effectiveness and suitability of a system under realistic conditions (e.g., combat) and to determine if the operational performance requirements have been satisfied. The following procedures are mandatory: threat or threat representative forces, targets, and threat countermeasures, validated in coordination with the Defense Intelligence Agency (DIA), shall be used; typical users shall operate and maintain the system or item under conditions simulating combat stress and peacetime conditions; the independent operational test activities shall use production or production representative articles for the dedicated phase of OT&E that supports the full-rate production decision, or for ACAT IA or other acquisition programs, the deployment decision; and the use of modeling and

simulation shall be considered during test planning. There are more mandatory procedures (9 total) in 5000.2-R. For additional information on acquisition terms, or terms not defined, please refer to AR 70-1, Army Acquisition Policy, available on the Web at http://www.army.mil/usapa/epubs/pdf/r70_1.pdf; or DA PAM 70-3, Army Acquisition Procedures, available on the Web at <http://www.dtic.mil/whs/directives/corres/pdf/500002p.pdf>.

Operational Support

The objectives of this activity are the execution of a support program that meets the threshold values of all support performance requirements and sustainment of them in the most life-cycle cost-effective manner. A follow-on operational testing program that assesses performance and quality, compatibility, and interoperability, and that identifies deficiencies shall be conducted, as appropriate. This activity shall also include execution of operational support plans, to include the transition from contractor to organic support, if appropriate. (Added from 5000.2-R)

Preliminary Design Review (PDR)

A multi-disciplined technical review to ensure that a system is ready to proceed into detailed design and can meet stated performance requirements within cost (program budget), schedule (program schedule), risk, and other system constraints. Generally, this review assesses the system preliminary design as captured in performance specifications for each configuration item in the system (allocated baseline), and ensures that each function in the functional baseline has been allocated to one or more system configuration items. Normally conducted during the System Development and Demonstration (SDD) phase. (Defense Acquisition Guidebook) See Functional Baseline and Allocated Baseline.

Product Manager (PM)

An HQDA command select list manager for a system or program. A PM may be subordinate to the AAE or PEO. Refers to the management level of intensity the Army assigns to a particular weapon system or information system. A Product Manager is a Lieutenant Colonel or GS-14 (or equivalent).

Production and Deployment (P&D) phase

The purpose of the Production and Deployment phase is to achieve an operational capability that satisfies the mission need. In this phase, software has to prove its maturity level prior to deploying to the operational environment. Once maturity has been proven, the system or block is baseline and a methodical and synchronized deployment plan is implemented to all applicable locations. A system must be demonstrated before DoD will commit to production and deployment. For DOT&E Oversight programs, a system cannot be produced at full-rate until a Beyond Low-Rate Initial Production report has been completed and sent to Congress, the Secretary of Defense, and the USD (UT&L).

The components of this phase include Low Rate Initial Production (LRIP), the Full-Rate Production Decision review, and Full-Rate Production and Deployment. LRIP is intended to result in completion of manufacturing development to ensure adequate manufacturing capability and to produce the minimum quantity necessary for Initial Operational Test and Evaluation. The Full-Rate Production Decision Review considers the cost estimate, manpower, results of test and evaluation, compliance and interoperability certification. Following the completion of a Full-Rate Production Decision Review, the program enters Full Rate Production & Deployment.

Production Qualification Test (PQT)

A technical test completed prior to the Full-Rate Production (FRP) decision to ensure the effectiveness of the manufacturing process, equipment, and procedures. This testing also serves the purpose of providing data for the independent evaluation required for materiel release so that the evaluator can address the adequacy of the materiel with respect to the stated requirements. These tests are conducted on a number of samples taken at random from the first production lot, and are repeated if the process or design is changed significantly, and when a second or alternative source is brought on line.

Production Readiness Review (PRR)

A formal examination of a program to determine if the design is ready for production, production-engineering problems have been resolved, and the producer has accomplished adequate planning for the production phase.

Normally performed as a series of reviews toward the end of the System Development and Demonstration (SDD) phase or early in the Production and Deployment (P&D) phase.

Program Initiation

The point at which a program formally enters the acquisition process. Under DoDI 5000.2, program initiation normally occurs at Milestone B, but may also occur at other milestones/decision points depending upon technology maturity and risk. At program initiation, a program must be fully funded across the Future Years Defense Program (FYDP) as a result of the Program Objectives Memorandum (POM)/budget process, that is, have an approved resource stream across a typical defense program cycle, for example Fiscal Year (FY) 2006-2011. Concept Refinement (CR) and Technology Development (TD) phases are typically not fully funded and thus do not constitute program initiation of a new acquisition program in the sense of DoDI 5000.2. This term is often confused with the financial management term new start. See *New Start, Concept Refinement, and Technology Development*.

Program Management

The process whereby a single leader exercises centralized authority and responsibility for planning, organizing, staffing, controlling, and leading the combined efforts of participating/assigned civilian and military personnel and organizations, for the management of a specific defense acquisition program or programs, throughout the system life cycle.

Qualification

The formal process by which a manufacturer's product is examined for compliance with the requirements of a source control drawing for the purpose of approving the manufacturer as a source of supply.

Qualification Test

Simulates defined operational environmental conditions with a predetermined safety factor, the results indicating whether a given design can perform its function within the simulated operational environment of a system.

1. Activities for the development of a new system or to expand the performance of fielded systems.
2. An appropriation.

Soldier Enhancement Program (SEP)†

Approved by Congress in 1989 and revised in 1992 with the aim of speeding the “factory to foxhole” process to enhance Soldier lethality, survivability, mobility, command and control, and sustainability with improved weapons and equipment.

Spiral Development

See *Evolutionary Acquisition*.

Sustainment

1. The first effort of the Operations and Support (O&S) phase established and defined by DoDI 5000.2. The purpose of the Sustainment effort is to execute the support program to meet operational support performance requirements and sustain the system in the most cost-effective manner over its life cycle. Sustainment includes supply, maintenance, transportation, sustaining engineering, data management, Configuration Management (CM), manpower, personnel, training, habitability, survivability, environment, safety (including explosives safety), occupational health, protection of critical program information, anti-tamper provisions, Information Technology (IT) (including National Security Systems [NSS]), supportability, and interoperability functions. Sustainment overlaps the Full Rate Production (FRP) and Deployment effort of the Production and Deployment (P&D) phase. (DoDI 5000.2)
2. The provision of personnel, logistic, and other support required to maintain and prolong operations or combat until successful accomplishment or revision of the mission or of the national objective. (CJCSI 3170.01C)

System Development and Demonstration (SDD)

System development and demonstration is the process of developing concepts into producible and deployable products that provide capability to the user. The purpose of this phase is to develop a system, reduce program risk, ensure

operational supportability, design for producibility, ensure affordability and demonstrate system integration, interoperability, and utility. The major components of this phase are System Integration, System Demonstration, and Interim Progress Review. Development is aided by the use of simulation, and test and evaluation activities are integrated into an efficient continuum planned and executed by a Test and Evaluation Integrated Product Team (T&E IPT).

The independent planning, execution, and evaluation of dedicated Initial Operation Test and Evaluation (IOT&E), if required, are the responsibility of the appropriate operational test activity (OTA). The program enters System Integration when the Project Manager has architecture for the system, but has not yet integrated the subsystems into a complete system. This effort is intended to integrate the subsystems and reduce system-level risk. The purpose of the Interim Progress Review is to confirm that the program is progressing as planned or to adjust the plan to better accommodate progress made to date, changed circumstances, or both. The program enters System Demonstration when the Project Manager has demonstrated the system in prototype articles.

System Integration (SI)

The first effort of the System Development and Demonstration (SDD) phase. A program enters System Integration (SI) when the Program Manager (PM) has a technical solution for the system, but has not yet integrated the subsystems into a complete system. The Capability Development Document (CDD) guides the effort, which typically includes demonstration of prototype articles or Engineering Development Models (EDMs). A successful Design Readiness Review (DRR) ends the SI effort. (DoDI 5000.2)

System of Systems (SoS)

A set or arrangement of interdependent systems that are related or connected to provide a given capability. The loss of any part of the system will degrade the performance or capabilities of the whole. (CJCSI 3170.01C)

Test and Evaluation (T&E)

The process by which a system or components are exercised and results

analyzed to provide performance-related information. The information has many uses including risk identification and risk mitigation and empirical data to validate models and simulations. T&E enables an assessment of the attainment of technical performance, specifications and system maturity to determine whether systems are operationally effective, suitable and survivable for intended use, and/or lethal. There are three distinct types of T&E defined in statute or regulation: Developmental Test and Evaluation (DT&E), Operational Test and Evaluation (OT&E), and Live Fire Test and Evaluation (LFT&E). See Operational Test and Evaluation, Initial Operational Test and Evaluation (IOT&E).

Type Classification (TC)

The process that identifies the life cycle status of a materiel system after a production decision by the assignment of a type classification designation. The process records the status of a materiel system as a guide to procurement, authorization, logistical support, asset, and readiness reporting. Satisfies DoD requirement to designate when a system is approved for Service use: (Army). Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD (AT&L)); Office of the Under Secretary of Defense (Acquisition, Technology, and Logistics) (OUSD (AT&L)). The OUSD (AT&L) is organized around services, Research and Development (R&D), and materiel acquisition. Several organizational elements report directly to the USD (AT&L) including the Principal Deputy USD (PDUSD (AT&L)), the Director, Defense Research and Engineering (DDR&E), the DUSD (Logistics and Materiel Readiness), and the Director, Ballistic Missile Defense Organization (BMDO). Also reporting into staff elements within OUSD (AT&L) are a number of Defense agencies such as the Defense Logistics Agency (DLA) and the Defense Advanced Research Projects Agency (DARPA). All acquisition-related definitions are taken from the Defense Acquisition University (DAU) Glossary. For further information on acquisition-related terminology, see DAU's site at <http://akss.dau.mil/jsp/Glossary.jsp>.

Those entries marked with * derive from the DoD Dictionary of Military Terms, http://www.dtic.mil/doctrine/dod_dictionary/.

Those marked with the † symbol are adapted from other sources.

Contractors By State

ALABAMA

Alabama Industries for the Blind
American Apparel
Communications & Ear Protection Inc.
Huntsville Rehabilitation Foundation
Science & Engineering Services Inc.
Taylor-Wharton
Westwind Technologies Inc.

ARIZONA

Alliant Techsystems (ATK)
ArmorWorks
BAE Systems
General Dynamics
General Dynamics C4S
GG&G Inc.
L-3 Communications Electro-Optical Systems

ARKANSAS

The Glove Corp.

CALIFORNIA

Airborne Systems NA
Arena Industries
Armacef
BAE Systems
Bijan Protective Equipment
Centron Industries

Ceradyne Inc.
Design West Aratech
Fire Force Tactical Gear Inc.
Gentex Corp.
Gibson and Barnes
Hatch Worldwide Imports
Laser Devices Inc.
NovaTac Inc.
Oakley USA
Paulson Manufacturing
Raytheon
Rockwell Collins
Secure Communication Systems Inc.
SureFire
Teledyne Imaging Sensors
US Divers
Wiley X Eyewear by Protective Optics Inc.

COLORADO

Capco Inc.

CONNECTICUT

Colt Defense
Colt Defense LLC
Colt's Manufacturing Co.
Interspiro
O.F. Mossberg & Sons Inc.
Okay Industries Inc.

DELAWARE

Masley Enterprises Inc.

DISTRICT OF COLUMBIA

Federal Prison Industries
General Services Administration Global Supply

FLORIDA

Bernard Cap Co.
Coastal Enterprises
DRS
DRS Optronics
Goodwill Industries
Grip Pod Systems
Knight's Armament Co.
Northrop Grumman Laser Systems
Phantom Products Inc.
Point Blank Body Armor
The Protective Group Inc.
Protective Materials Co.
Protective Products Enterprise
Source One Distributors
SPA NovaTac

GEORGIA

Altama Footwear
Ashland Sales and Service

Bremen Bowdon
Iguana LLC
Middle Georgia
Tencate
UNICOR
Woolrich Inc.

IDAHO
Eye Safety Systems Inc.
Smith Optics

ILLINOIS
Airtronic Services Inc.
Belleville Shoe Manufacturing Co.
First-Light USA
Nationwide Glove Co., Inc.
Norcross Safety Products
Norcross Safety Products/Honeywell
Thor Defense Inc.

INDIANA
Raytheon Technical Services
UNICOR

IOWA
Ansell Hawkeye Inc.
Brownells Inc.
Rockwell Collins

KANSAS
Bushnell Inc.
Center Industries Corp.

KENTUCKY
Ashland Sales/Macon
P & S Products Inc.
Pioneer Vocational Industrial Services
Southeastern Kentucky Rehabilitation Industries
UNICOR

LOUISIANA
Wellstone Apparel

MAINE
Creative Apparel
General Dynamics Armament and Technical Products
Group Home Foundation
Source for Native American Products (SNAP)

MARYLAND
Beretta U.S.A. Corp.
Elite Issue
Thales

MASSACHUSETTS
BAE Systems
Eagle Industries

General Dynamics
Protech Armored Products
Samson Manufacturing Inc.

MICHIGAN
Bates Uniform Footwear
General Dynamics Land Systems
Peckham Vocational Industries
Telex Communications Co.
Trijicon
Wolverine Worldwide

MINNESOTA
Alliant Techsystems
Ames True Temper
Benchmark Electronics

MISSISSIPPI
Golden Manufacturing
Pioneer Aerospace Corp.
Wellstone Apparel

MISSOURI
Eagle Industries
Eagle Industries/ATK
Energizer Holdings Inc.

NEVADA

U.S. Ordnance

NEW HAMPSHIRE

BAE Systems

Insight Technology Inc.

L-3 Insight Technology Inc.

Saint-Gobain

NEW JERSEY

Bethel Industries

DeRossi & Son Co.

Harris Manufacturing Co.

Military Equipment Corp. of America

Polymer Technologies Inc.

Savit Corp.

Sonetronics

NEW YORK

Allen Vanguard

Astrocom Electronics Inc.

Carleton Technologies Inc.

Hercules Glove Manufacturing

Human Technologies

Industries for the Blind

Med-Eng Systems Inc.

Otis Products Inc.

Oxygen Generating Systems International

Remington Arms Co. Inc.

Sandina Enterprises

Seneca-Cayuga Counties Chapter, NYSARC Inc.

Telephonics Corp.

Tennier Industries Inc.

Tri-Technologies Inc.

NORTH CAROLINA

Federal Covers and Textiles

Fox Apparel

General Dynamics Armament and Technical Products Inc.

KDH Inc.

McRae Industries Inc.

Mills Manufacturing Corp.

MSA Paraclete

National Industries of the Blind Inc.

Pickett Hosiery Mills

Royal Park Uniforms

Special T Hosiery Mills

UNICOR

Wellco Enterprises Inc.

OHIO

Guardian Manufacturing

Morning Pride Manufacturing

Rocky Boot

SSK Industries

Team Wendy

Vocational Guidance Service (VGS)

OREGON

Danner Inc.

Gerber Legendary Blades

Leupold & Stevens Inc.

Massif Mountain Gear Co.

Mountain High Equipment & Supply Co.

Oregon Aero

PENNSYLVANIA

BAE Systems

Fraser-Volpe Corp.

Gentex

Gentex Optics Inc.

Indogem Inc.

KDH Defense Systems Inc.

Kongsberg Defense & Aerospace

L-3 Communications/Brashear

Streamlight

PUERTO RICO

API Manufacturing

DJ Manufacturing

Kandor Manufacturing

Propper International

SNC Manufacturing

Wear-Tech

RHODE ISLAND

Northwest Woolen Mills

Sperian Eye and Face Protection Inc. (AKA UVEX)

SOUTH CAROLINA

Fabrique National Manufacturing LLC

North Safety Products

SOUTH DAKOTA

Aerostar International

TENNESSEE

Barrett Firearms Manufacturing

Lions Volunteer Blind Industries

Omega

Sabre Defense Industries

Tennessee Apparel Corp.

Tullahoma Industries

Universal Technologies Inc.

TEXAS

BAE Systems

DRS Optronics

EFW Inc.

L-3 Communications Electro-Optical Systems

Raytheon

ReadyOne

Reyes

Sidran Inc.

Travis Association for the Blind

UNICOR

UTAH

JDLL

VERMONT

General Dynamics Armament and Technology Products

Mine Safety Appliances

Revision Eyewear

VIRGINIA

Aerial Machine and Tool Corp.

Aimpoint Inc.

Ashbury International Group Inc.

ASP

Atlantic Dive Supply (ADS)

BAE Systems

Booz Allen Hamilton

Capps Shoe Co. Inc.

Heckler & Koch Defense

Industries for the Blind

ITT Industries Night Vision

Jensen Apparel

London Bridge Trading Company

M&B Headwear

National Industries for the Blind

National Institute for the Severely Handicapped Inc.

Ring Side

StEPS

Vertu Corp.

WASHINGTON

Cascade Designs Inc.

National Institute for the Blind

Seattle Lighthouse for the Blind

WISCONSIN

Weinbrenner Shoe Company Inc.

International Contractors

CANADA

Airboss Defense

ELCAN Optical Technologies

General Dynamics Ordnance and Tactical Systems

GERMANY

H&K Gmbh

ISRAEL

Elbit Systems Ltd.

UNITED KINGDOM

Civil Defense Supply (International) Ltd.

Ultimate Training Munitions

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